MAR/FY06

SUNFLOWER ARMY AMMUNITION PLANT

Kansas

Army Defense Environmental Restoration Program Installation Action Plan

Final 1 September 2006

Table of Contents

Table of Contents

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC), Sunflower Army Ammunition Plant (SFAAP), executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on 28-29 March 2006:

Company/Installation/Branch
Clearview City, RAB
Engineering & Environment, Inc. for US Army Environmental Center
US Environmental Protection Agency, Region VII
IRG
JOCO Environmental
Kansas Department of Health and Environment/BER
Kansas Department of Health and Environment/BER
Sunflower Army Ammunition Plant
US Army Environmental Center

Acronyms & Abbreviations

AEDB-R	Army Environmental Database - Restoration
AOC	Area of Concern
ATSDR	Public Health Assessment
bgs	below ground surface
BRAC	Base Realignment and Closure
CCC	Calcium Carbonate Cake
CMI (C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measures Implementation (Operation)
CMS	Corrective Measures Study
CS	Confirmatory Sampling
CTC	Cost to Complete
CWP	Contaminated Waste Processor
cy	cubic yards
DD	Decision Document
DES	Design
DNT	Dinitrotoluene
EBS	Environmental Baseline Survey
ER,A	Environmental Restoration, Army (formerly called DERA)
ft	feet
FS	Feasibility Study
FY	Fiscal Year
GN	Guanidine Nitrate
GSA	General Services Administration
GW	Groundwater
IAP	Installation Action Plan
IRA	Interim Removal Action
IRP	Installation Restoration Program
KDHE	Kansas Department of Health and Environment
LTM	Long-Term Management
LWTP	Liquid Waste Treatment Plant
MCL	Maximum Contaminant Level
MMRP	Military Munitions Response Program
NC	Nitrocellulose
NE	Not Evaluated
NFA	No Further Action
NG	Nitroglycerine
NGB	National Guard Bureau
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NQ	Nitroguanidine
NSE	Nitroguanidine Support Equipment
PA	Preliminary Assessment
PAH	Polyaromatic Hydrocarbons
PBC	Performance-Based Contract
PCB	Polychlorinated Biphenyls
PCE	Perchloroethylene or tetrachlorothylene

Acronyms & Abbreviations

POL	Petroleum, Oil & Lubricants
PRG	Preliminary Remediation Goal
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
RSK	Risk-based Standards for Kansas
RWTP	River Water Treatment Plant
SFAAP	Sunflower Army Ammunition Plant
SAAP	Sunflower Army Ammunition Plant AEDB-R Site Code
SAC	Sulfuric Acid Concentrator
SI	Site Inspection
SRL	Sunflower Redevelopment, LLC
STP	Sewage Treatment Plant
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TPH-DRO	Total Petroleum Hydrocarbons-Diesel Range Organics
TRC	Technical Review Committee
USACE	US Army Corps of Engineers
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEC	US Army Environmental Center
USAEHA	US Army Environmental Hygiene Agency (now known as USACHPPM)
USEPA	US Environmental Protection Agency
USATHAMA	US Army Toxic and Hazardous Materials Agency (now known as USAEC)
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds
WWII	World War II

AEDB-R to Alias Conversion

AEDB-R #	Alias	AEDB-R #	Alias	AEDB-R #	Alias
SAAP-001	SWMU 1	SAAP-038	SWMU 38	SAAP-101	AOC 1
SAAP-002	SWMU 2	SAAP-039	SWMU 39	SAAP-102	AOC 2
SAAP-003	SWMU 3	SAAP-040	SWMU 40	SAAP-103	AOC 3
SAAP-004	SWMU 4	SAAP-041	SWMU 41	SAAP-104	AOC 4
SAAP-005	SWMU 5	SAAP-042	SWMU 42	SAAP-105	AOC 5
SAAP-006	SWMU 6	SAAP-043	SWMU 43	SAAP-106	AOC 6
SAAP-007	SWMU 7	SAAP-044	SWMU 44	SAAP-107	AOC 7
SAAP-008	SWMU 8	SAAP-045	SWMU 45	SAAP-108	AOC 8
SAAP-009	SWMU 9	SAAP-046	SWMU 46	SAAP-109	AOC 9
SAAP-010	SWMU 10	SAAP-047	SWMU 47	SAAP-110	AOC 10
SAAP-011	SWMU 11	SAAP-048	SWMU 48	SAAP-111	AOC 11
SAAP-012	SWMU 12	SAAP-049	SWMU 49	SAAP-112	AOC 12
SAAP-013	SWMU 13	SAAP-050	SWMU 50	SAAP-113	AOC 13
SAAP-014	SWMU 14	SAAP-051	SWMU 51	SAAP-114	AOC 14
SAAP-015	SWMU 15	SAAP-052	SWMU 52	SAAP-115	AOC 15
SAAP-016	SWMU 16	SAAP-053	SWMU 53	SAAP-116	AOC 16
SAAP-017	SWMU 17	SAAP-054	SWMU 54	SAAP-117	AOC 17
SAAP-018	SWMU 18	SAAP-055	SWMU 55	SAAP-118	AOC 18
SAAP-019	SWMU 19	SAAP-056	SWMU 56	SAAP-119	AOC 19
SAAP-020	SWMU 20	SAAP-057	SWMU 57	SAAP-120	AOC 20
SAAP-021	SWMU 21	SAAP-058	SWMU 58	SAAP-121	AOC 21
SAAP-022	SWMU 22	SAAP-059	SWMU 59	SAAP-122	AOC 22
SAAP-023	SWMU 23	SAAP-060	SWMU 60	SAAP-123	AOC 23
SAAP-024	SWMU 24	SAAP-061	SWMU 61	SAAP-124	AOC 24
SAAP-025	SWMU 25	SAAP-062	SWMU 62		
SAAP-026	SWMU 26	SAAP-063	SWMU 63		
SAAP-027	SWMU 27	SAAP-064	SWMU 64		
SAAP-028	SWMU 28	SAAP-065	SWMU 65		
SAAP-029	SWMU 29	SAAP-066	SWMU 66		
SAAP-030	SWMU 30	SAAP-067	SWMU 67		
SAAP-031	SWMU 31				
SAAP-032	SWMU 32				
SAAP-033	SWMU 33				
SAAP-034	SWMU 34				
SAAP-035	SWMU 35				
SAAP-036	SWMU 36				
SAAP-037	SWMU 37				
SAAP-038	SWMU 38				

Installation Information

Installation Locale: The Sunflower Army Ammunition Plant is located on 9,065 acres in rural northwestern Johnson County, Kansas. It is approximately 3 miles southwest of DeSoto, Kansas and 28 miles southwest of Kansas City. It is roughly rectangular in shape and about 6 miles long by 3 miles wide, with the long axis oriented in a north- south direction.

Sunflower Army Ammunition Plant, originally known as the Sunflower Ordnance Works, was established in 1941 on 10,747 acres as the world's largest powder and propellant plant. Production of propellant began in 1943 and played a significant role in history by providing munitions for three major military conflicts - WWII, the Korean Conflict and the Vietnam Conflict. The installation has been determined to be in excess of Army needs, and General Services Administration (GSA) has begun the process of disposing of all Sunflower property.

Installation Mission: Decontaminate explosive facilities, clean up environmental contamination, and transfer installation to other Government agencies or the private sector.

Lead Organization: Base Realignment and Closure Division (BRACD)

Lead Executing Agency: Kansas Department of Health and Environment (KDHE)

Regulatory Participation:
Federal: US Environmental Protection Agency, Region VII, RCRA Branch
State: Kansas Department of Health and Environment, Bureau of Environmental Remediation

National Priorities List (NPL) Status: Proposed for NPL in February 1995. Remains on proposed list.

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status: There is an active RAB at SFAAP that meets every two months and will continue as long as interest warrants.

Installation Program Summaries

IRP

Primary Contaminants of Concern: Nitrocellulose, Nitroglycerine, Nitroguanidine, Propellant constituents, Nitrates, Pesticides, Heavy Metals
Affected Media of Concern: Groundwater, Soil, Surface Water, Sediment
Estimated date for Response Complete (RC): 2008
Funding to Date: (up to FY05): $39,268.8K
Current year funding (FY06): $5,400K
Cost-to-Complete (FY07+): $51,900K

MMRP

The two MMRP sites listed in AEDB-R are considered NFA. One site is ineligible for MR funding with Clean Closure and the other was found No Cleanup Required.

Cleanup Program Summary

Installation Historic Activity

Sunflower Army Ammunition Plant, originally known as the Sunflower Ordnance Works, was established in 1941 on 10,747 acres as the world's largest powder and propellant plant. Production of propellant began in 1943 and played a significant role in history by providing munitions for three major military conflicts - WWII, the Korean Conflict and the Vietnam Conflict. The installation has been determined to be in excess of Army needs. All of the Sunflower property has been transferred to a private developer, Sunflower Redevelopment, LLC (SRL). The entire cleanup program was contracted with SRL under a Performance Based Contract (PBC).

Additional installation operations included the manufacture and regeneration of nitric and sulfuric acids, and munitions proving.

During the course of its 50-pl years of operation, various hazardous substances were released both inadvertently and intentionally to the environment. These releases, which are not uncommon at major industrial facilities, were from production line areas and various support areas. There are 67 RCRA solid waste management units (SWM), and 24 Areas of Concern (AOCs). The EPA proposed listing the installation on the National Priorities List (NPL) in 1995.

Preliminary investigations have been conducted on all SWM. In addition to studying each SWMU, three SWM have received final closure. Studies show that five SWM will not require any remedial action for soil. Soil cleanups have been completed at 12 SWM/AOCs. Three SWM are landfills in post-closure care. Four AOCs are being handled under existing SWM. Special work performed on the plant includes a community relations plan, groundwater investigation, benthic macro invertebrate study, grazing study, ecological risk assessment, Public Health Assessment (ATSDR), off-site well survey, and an installation-wide stream study.

The plant has an active RAB that represents a broad range of community views. An active Technical Review Committee consisting of installation personnel, USEPA, KDHE, the US Army Corps of Engineers, and contractors meets monthly to discs restoration activities and devise ways to accelerate the cleanup program.

Thirteen new SWM and 22 AOCs were identified in the 1998 installation-wide Environmental Baseline Survey. USACHPPM performed relative risk site evaluations on those sites that are eligible for ER,A funding.

Two new AOCs were added for the soil cleanup underneath explosive foundations and explosive sewers.

IRP

Investigations have been conducted at SAAP-001-053. Several of these sites have been remediated, or require no further action. The remaining sites between SAAP-001 and 053 that require further action will have additional investigations to fill data gaps and will be remediated if required. SAAP-054 thru 124 will be investigated and remediated if required.

Transfer Summary

Total Installation Acres: 9,065 Acres

Parcel Name: **All**
Parcel Size: 9,065 Acres
Associated Sites: SAAP-001, SAAP-002, SAAP-003, SAAP-004, SAAP-005, SAAP-006, SAAP-007, SAAP-008, SAAP-009, SAAP-010, SAAP-011, SAAP-012, SAAP-013, SAAP-014, SAAP-015, SAAP-016, SAAP-017, SAAP-018, SAAP-019, SAAP-020, SAAP-021, SAAP-024, SAAP-025, SAAP-026, SAAP-027, SAAP-030, SAAP-031, SAAP-033, SAAP-035, SAAP-036, SAAP-037, SAAP-038, SAAP-039, SAAP-040, SAAP-041, SAAP-043, SAAP-045, SAAP-046, SAAP-047, SAAP-048, SAAP-050, SAAP-051, SAAP-053, SAAP-054, SAAP-056, SAAP-057, SAAP-058, SAAP-059, SAAP-060, SAAP-063, SAAP-064, SAAP-065, SAAP-066, SAAP-067, SAAP-101, SAAP-104, SAAP-105, SAAP-110, SAAP-111, SAAP-112, SAAP-114, SAAP-115, SAAP-116, SAAP-117, SAAP-118, SAAP-119, SAAP-120, SAAP-121, SAAP-122, SAAP-123, SAAP-124

Transfer Date: 20050815

Current Land e: Mixed e

Future Land e: Mixed e

Leases/Permits/Licenses: None

Transfer Strategy: Transfer Outside of Federal Government/Special Legislation

Recipient: Sunflower Redevelopment, LLC

Other Issues Affecting Transfer: None

SUNFLOWER ARMY AMMUNITION PLANT

Installation Restoration Program

IRP Summary

Total AEDB-R IRP Sites / AEDB-R sites with Response Complete: 87/19

Different Site Types:

3 Above Ground Storage Tanks	2 Disposal Pit/Dry Wells
5 Burn Areas	6 Drainage Ditch
1 Chemical Disposal Areas	1 Firing Range
4 Contaminated Buildings	1 Incinerator
1 Contaminated Fill	5 Landfills
3 Contaminated Groundwater	2 POL
3 Contaminated Sediment	1 Sewage Treatment Plant
5 Contaminated Soil Piles	7 Storage Areas
1 Pesticide Shop	15 Surface Impoundment Lagoons
4 Spill Site Areas	2 Waste Treatment Plants
10 Surface Disposal Areas	1 Oil Water Separator
2 UXO	
2 Maintenance Yards	

Most Widespread Contaminants of Concern: Nitrocellulose, Nitroglycerine, Nitroguanidine, Propellant constituents, Nitrates, Pesticides, Heavy Metals

Media of Concern: Soil, Groundwater, Sediment, Surface Water

Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):

- Interim Remedial Action performed at SWMU 50 in FY97 (Total Construction Cost: $236,000).
- Lagoon Closure performed as Remedial Action in FY97 (Total Construction Cost: $558,000)
- Completed RA for SWMU 10 & 11 in FY01 (Total contract cost: $5,869,111)
- Completed IRA for SWMU 18, 32, 33, 34, 35 in FY02 (Total construction cost: $1,208,332)
- Completed RA for SWMU 22 in FY05 (Total construction cost: $2,205,103)
- Completed RA for SWMU 10 (including AOC 6) in FY05 (Total construction cost: $525,336)

Total IRP Funding

Prior years (up to FY05):	$39,268.8K
Current year funding (FY06):	$5,400K
Future Requirements (FY07+):	$51,900K
Total:	$91,168.8K

Duration of IRP

Year of IRP Inception:	1979
Year of IRP RIP/RC:	2008

Year of IRP Completion including Long-Term Management (LTM): Indefinite

IRP Contamination Assessment

IRP Contamination Assessment Overview

Sunflower Army Ammunition Plant no longer has a military mission. The property was transferred to a private developer (SRL), in August 2005. Past sampling has revealed that hazardous substances are in the soil, sediment and groundwater beneath the plant. Sunflower is continuing concentrated efforts to decontaminate explosive buildings/foundations/sewers and cleanup all production sites contaminated with hazardous substances.

Sixty-seven Solid Waste Management Units (SWM) and twenty-four Areas of Concern (AOCs) are included in the RCRA investigations. During preparation of RFI work plans (1993), the SWMUs were subdivided into six groups based on industrial activities, treatment processes and disposal methods. These categories are N-5 Propellant Production Sites, Nitroguanidine Production Site, Landfill Sites, Waste Treatment Sites, Support Area Sites, and a Single Base Propellant Area.

As site specific sample data becomes available from the initial RFI studies, discussions are held at regular intervals with the Project team, EPA and KDHE to ensure that the IRP program continues to address those SWMUs with the greatest potential to impact human health and the environment.

A corrective measures study (CMS) was completed for SAAP-010, 011, 021, 022, and 032. The corrective measures implementation (CMI) for SAAP-010 and 011 was completed in FY00. A Groundwater Study and Grazing Study were completed. An IRA was completed for SWMUs 18, 32, 33, 34 and 35 in FY02. The CMI for SAAP-022 was completed in FY05. An additional CMI was completed for SAAP-010, which included AOC 6, in FY06.

Based on this process, the current planned responses include completing RFI reports for those SWMUs where investigations are under way, collecting data on the nature and extent of contamination at SWMUs that are yet to be characterized, beginning CMSs on the highest priority SWMUs and undertaking CMIs at SWMUs where required.

The activities detailed in this IAP will be accomplished using specifically appropriated funds for the cleanup of contamination resulting from past releases of potentially hazardous substances to the environment. These activities will be accomplished under the PBC with SRL. The cleanup will be conducted pursuant to the Consent Order between KDHE and SRL.

IRP Cleanup Exit Strategy

In order for Sunflower to get to No Further Action approved by the regulators, many sites require additional investigation and some sites require an initial investigation. Sites known to contain contaminants in soil/sediments above risk levels will be remediated. After soil contamination is remediated the contaminated groundwater will undergo monitored natural attenuation. Specifics can be found in Cleanup Strategies for each site.

IRP Cleanup Exit Strategy (cont.)

As sites become fully funded under the PBC with SRL, they will be designated as RC even though future cleanup activities are required. It is anticipated that all sites will be fully funded as of January 2008. These cleanup activities will be conducted in accordance with the Consent Order between KDHE and SRL. Per the Trust Agreement in the Remediation Services Contract between the Army and SRL (W52H09-5-D-5008) the Army agreed to pay SRL a certain amount of ER,A funds on the date the Contract was signed and will pay ER,A funds in certain amounts on certain dates in the future (annually).

The following is the schedule for when sites become fully funded under the PBC with SRL and are designated as RC even though future cleanup activities are required. This is referred to as buying out the site under the PBC as directed by AEC:

August 2005: SAAP-014, 017, 020, 033, 035, 041, 048, 050, 058, 066, 114, 118, 119, 120, 121.

January 2006: SAAP-003, 021, 055, 056, 060, 101, 105.

January 2007: SAAP-001, 007, 008, 009, 010, 012, 013, 015, 016, 024, 026, 027, 030, 036, 037, 039, 040, 046, 047, 053, 054, 057, 059, 063, 064, 065, 104, 110, 112, 115, 122.

January 2008: SAAP-002, 004, 005, 006, 011, 018, 019, 025, 031, 038, 043, 045, 051, 067, 111, 116, 117, 123, 124.

Previous Studies

1974

- Water Quality Monitoring, Consultation No. 24-044-74/75, Sunflower AAP, US Army Environmental Hygiene Agency, 11-15 February 1974,February
- Preliminary Environmental Survey for SFAAP, Aberdeen Proving Ground, MD and Dugway Proving Ground, UT, August

1976

- Aquatic Ecological Surveys at SFAAP, Army, Edgewood Arsenal, August

1977

- Pollution Status Report – SFAAP, Picatinny Arsenal, NJ, January
- Source Sampling Data Summary Report, Study No. 21-0416-77, April 1977, US Army Environmental Hygiene Agency, April
- Environmental Impact Assessment of NC Acid Wastewater Treatment Facility, Hercules, August
- Environmental Impact Assessment of SFAAP Environmental Hazards from Activating Inactive Facilities, Hercules, November

1978

- Water Quality Biological Study No. 32-24-0134-79, Sunflower AAP, 10-21 July 1978, US Army Environmental Hygiene Agency, July
- Environmental Assessment/Master Plan for SFAAP, Hercules, September
- Environmental Impact Assessment Statement (Revised), Hercules, December

1979

- Army Pollution Abatement Program Feasibility Study for Acid Waste Treatment Area, SFAAP, Clark-Dietz Eng, Inc., May
- Water Management Study of the Nitroguanidine Production Facility – SFAAP, Aberdeen Proving Ground, MD, July
- Ambient Air Quality Impact Analysis, Nitroguanidine Facility, Sunflower AAP, June-November 1979, US Army Environmental Hygiene Agency, November

1980

- Installation Assessment of Sunflower AAP, Report No. 163, US Army Toxic and Hazardous Materials Agency, March
- Water Quality Monitoring Consultation (WM) No. 32-66-0141-80, Sunflower AAP, 21-25 July 1980, US Army Environmental Hygiene Agency, July
- Army Pollution Abatement Program Study No. D-1473-W, Landfill Disposal Study, Sunflower AAP, September 1978-September 1980, US Army Environmental Hygiene Agency, September
- Hazardous Waste Management Survey No. 39-26-0131-82, Sunflower AAP, 18-21 November 1980, US Army Environmental Hygiene Agency, November

1980 (cont.)

- Acoustical Engineering Noise Reduction Special Study No.51-34-0457-81, Ball Mill and Boiler Hoe Noise, Sunflower AAP, 1-4 December 1980, US Army Environmental Hygiene Agency, December

1981

- Landfill Disposal Study # D-1473-W, SFAAP (Sep 1978 - Sep 1980), Army Environmental Hygiene Agency, March

1982

- Water Quality Engineering Consultation No. 32-24-0340-83, Sunflower AAP, 1-5 February 1982, US Army Environmental Hygiene Agency, February
- Potable/Recreational Water Quality Survey No. 31-66-0141-83, Sunflower AAP, 20-24 September 1982, US Army Environmental Hygiene Agency, September
- Phase I Land Treatment Feasibility Study No. 32-24-0410-83, Sunflower AAP, December 1982, US Army Environmental Hygiene Agency, December

1983

- Ground-water Quality Assessment Plan No. 38-26-0461-84, Nitroguanidine/Carbide Area, Sunflower AAP, 12-15 April 1983, US Army Environmental Hygiene Agency, April
- Ground-water Quality Assessment Plan No. 38-26-0264-84, Power Hoe/Industrial Waste Treatment Area, Sunflower AAP, 15-15 April 1983, US Army Environmental Hygiene Agency. April
- Phase 2, Hazardous Waste Management Special Study No. 37-26-0147-84, DARCOM Open-Burning/Open-Detonation Grounds Evaluation, Sunflower AAP, 9-19 May 1983, US Army Environmental Hygiene Agency, May
- Alternative Methods of Fines Removal from Coal Pile Run-Off at SFAAP, Eugene A. Hickock & Assoc, October

1984

- Land Treatment Feasibility Study No. 32-24-0419-84, Sunflower AAP, 9-13 April 1984, US Army Environmental Hygiene Agency, April

1985

- Hazardous Waste Study No. 37-26-0710-86, Investigation of Possible Soil Contamination from Propellant and Explosive Production, US Army Environmental Hygiene Agency, January
- Exposure Information Report Powerhouse Industrial Waste Treatment Lagoon, AEHA Project No. 37-26-1342-86, US Army Environmental Hygiene Agency, January
- Archaeological Overview and Management Plan for SFAAP, Johnson County, KS, For Army and National Parks Service, Dept of Interior by Nickens and Assoc, January
- NQ Wastewater Pollution Control Engineering Study, Hercules, February

1985 (cont.)

- Hazardous Waste Study No. 37-26-0709-87, Investigation of Pond and Ditch Sediments, Sunflower AAP, 21 October - 8 November 1985, US Army Environmental Hygiene Agency, October
- Hazardous Waste Study No. 37-26-0710-86, Investigation of Possible Soil Contamination from Propellant and Explosive Production, 22 October - 8 November 1985, US Army Environmental Hygiene Agency, October

1986

- Biological Treatment of SFAAP Wastewater Proposed Pilot Test Program, PolyBac Corp, January
- Environmental Risk Identification and Assessment of Nitroguanidine Manufacturing at SFAAP, Army, February
- Wastewater Hazards Analysis Assessment of SFAAP Nitroguanidine Wastewater GAC/IE Pilot Plant, Arthur D. Little, Inc., May
- Short-Term Extension of Wastewater Lagoons Life at SFAAP, For ATHAMA by Arthur D. Little, Inc, May
- Memorandum from R. M. Thompson, Rd: Treatment of Roberts Lake, Hercules Inc. - Aerospace Division, August
- SFAAP Environmental Compliance Audit, For AMC by Huntsville AL Corps of Eng, October

1987

- Spill Containment Structures Evaluation Committee Report, US Department of the Army, April
- Evaluation of the Suitability of the River Water Treatment Plant Lagoons for Treating NQ Wastewater, US Department of the Army, May
- Engineering Study Report, Sunflower AAP, US Department of the Army, June
- Evaluation of the Adequacy of Existing Non-Discharging Lagoons for Current and Long-Term Uses, Sunflower AAP, September 1986, revised June, 1987, US Department of the Army, June
- Federal Facilities Compliance Agreement Final Engineering Report Between Army/SFAAP and EPA, Army and EPA, June
- Characterization of Nitroguanidine Wastewater, Final Report, US Department of the Army, June
- Ground-Water Contamination Survey No. 38-26-0856-89, Final Report, Evaluation of Solid Waste Management Units, Sunflower AAP, 21-25 September 1987, US Army Environmental Hygiene Agency, September
- Solid Waste Disposal Study # 38-26-0824-88, Landfill Site Selection - SFAAP (18-21 May and 15-20 Jun 87), Army Environmental Hygiene Agency, December

1988

- Water Quality Engineering Study No. 32-24-0820-89, Final Report, Land Treatment System Evaluation, US Army Environmental Hygiene Agency, January

1988 (cont.)

- Geohydrologic Study No. 38-26-0316-89, SAC Evaporation Lagoons and Building 9042 Area, 9-24 May and 11-21 October, US Army Environmental Hygiene Agency, May
- SFAAP SBR Denitrification Project (Bench Scale), James M. Montgomery Consulting Eng, Inc., June
- Asbestos Survey at SFAAP, Foster-Wheeler, July
- Report of an Environmental Baseline Study, Koch Sulfur Products Company, Wilson and Company, November

1989

- Project Plan, Geohydrologic Study No. 38-26-8813-89, Monitoring Well System Upgrade and Ground-Water Quality Assessment, Carbide and Power Hoe Areas, Department of the Army, January
- Preliminary Endangerment Assessment (Draft) Task Order No. 12, Dames and Moore, January
- Army Response to Clearview City Environmental Screening by Environmental Audit Inc., Crestwood, KS, Army, May
- Remedial Investigation Findings for SFAAP, ATHAMA, August
- Investigation and Evaluation of Underground Storage Tanks, SFAAP, ACE - Omaha District, September
- Remedial Investigation Report fro SFAAP, Dames and Moore, September

1990

- RCRA Preliminary Review/Visual Site Investigation Report, Sunflower AAP. B&V Waste Science and Technology Corp, January
- Koch Sulfur Products, Environmental Baseline Study, Supplement 1, Additional Soil Investigation, Wilson and Company, April
- Geohydrologic Study No. 38-26-8813-90, Nitroguanidine Production Area, 11-21 October 1988, 24 April - 12 May 1989, 31 May-11 June 1989, 4-7 December 1989, US Army Environmental Hygiene Agency, July
- RCRA Preliminary Review/Visual Site Investigation Report, SFAAP, PRC Environmental Management Inc., September
- Environmental Assessment - Disposal Batch Nitroglycerin (NG) Building by Open Burning, Army, November

1991

- Geohydrologic Study No. 38-26-K952-91, Old Nitroguanidine Support Equipment Facility, Sunflower AAP, 1-9 April, US Army Environmental Hygiene Agency, April
- Kansas Department of Health and Environment: Letter concerning the land farming results of the contaminated soils for total petroleum hydrocarbon levels, Slade, Jack, December

Previous Studies

1992

- Phase 2, Geohydrolic Study No. 38-26-KF69-93, Subsurface Fuel Release, Building 6866 N-Line Trailer and Jeep Shop, SFAAP, US Army Environmental Hygiene Agency, January
- Report of Environmental Compliance Program Review at SFAAP, AMC Installation and Services Activity, May
- Environmental Assessment for Proposed Inactivation of SFAAP with 14 Aug 1992 Finding of No Significant Impact (FONSI) Cover Letter, For AMC by Huntsville AL Corps of Eng, July
- General Operating Procedure, Maintenance Unit, “Decontaminating, Preserving and Storage of General Equipment at Sunflower Army Ammunition Plant", Hercules Aerospace Company Ordnance Group, August,
- Preliminary Assessment Screening, Koch Sulfur Products Company, SCS
- Engineers, September

1993

- RCRA Facility Investigation Site Safety and Health Plan for SFAAP, Law Environmental, Inc, January
- RCRA Facility Investigation Quality Assurance Project Plan for SFAAP, Law Environmental, Inc, January
- Aerial Photo Analysis, EPA, April
- Environmental Assessment / PAS - Kill Creek Corridor Land-Lease for Public Park, Hercules, May
- Preliminary Assessment of Record of Environmental Consideration for Corridor 10 Commerce Park to Connect to Government Rail Line, Hercules, May
- Groundwater Quality Consultation- Nitroguanidine Production, Army Environmental Hygiene Agency, August
- Memorandum from J.C. Betteken, regarding the Depainting Sand Debris Found Non-Hazardous, Hercules Aerospace Company Ordnance Group, August
- Kansas State Proposal for Development of a Horticulture Forestry Research/Education Center on Specific Lands on SFAAP, Kansas State University, August

1994

- Environmental Assessment for SFAAP Operations and Maintenance Activities, Hercules, January
- Analytical Data from Kansas University Medical Center Landfill Upgradient Monitoring Wells, Univ of Kansas Medical Center Safety Office, March
- Work Plan, RCRA Facility Investigation, Law Environmental, Inc., May
- Field Sampling Plan - RCRA Facility Investigation, Law Environmental, Inc., May
- General Operating Procedure - Asbestos Materials Handling/Disposal, Hercules, June
- Roberts Lake Receiving Water Biological Study - Environmental Sampling, Army Environmental Hygiene Agency, September

Previous Studies

1995

- Background Investigation Workplan, Law Environmental, Inc., January
- Initial Public Health Assessment, US Department of Health and Human Services, ATSDR, January
- Commander's Personal Environmental Assessment for SFAAP, Army, January
- Sub-surface Investigation of Proposed Lease Property, Koch Sulfur Products, January
- Spill Prevention Control and Countermeasures Plan, Schrader, John, W., March
- RCRA Facility Investigation Addendum for Priority 2 SWM, Burns and McDonnell, May
- Contamination Evaluation Report for the Water Line Construction Corridor, SFAAP, Law Environmental, Inc., June
- RCRA General RCRA Facility Investigation Quality Control Summary Report for SFAAP (Volume I), Law Environmental, Inc., August
- Investigation Derived Waste Management (IDW) Workplan, Law Environmental, Inc., September
- Benthic Macro invertebrate Survey - Final Report, RCRA Facility Investigation, Law Environmental, Inc., September
- RCRA Facility Investigation Quality Assurance Project Plan Addendum, Law Environmental, Inc., September
- RCRA General RCRA Facility Investigation Quality Control Summary Report for SFAAP (Volume II), Law Environmental, Inc., October
- Annual Report - Army Radon Reduction Program Implementation Progress, Hercules Aerospace Company Ordnance Group, October
- ATSDR Site Summary of SFAAP, ATSDR, December

1996

- RCRA Facility Investigation Report Addendum for SWM 37, 51, and 52, Burns and McDonnell, February
- RCRA Facility Investigation Addenda for SWM 15, 20, 40, 43 and 44, Burns and McDonnell, March
- Receiving Water Biological Study No. 32-24-1174-94, Environmental Sampling of Robert's Lake, SFAAP, US Army Environmental Hygiene Agency, March
- Ecological Risk Assessment Work Plan, Burns and McDonnell, April
- Grazing Study Work Plans, Volumes I & II, Burns and McDonnell, May
- Layaway of Industrial Facilities (LIF) Project 5968612 - Disposal of Polychlorinated Biphenyl Contaminated Transformers SFAAP, Army, May
- Risk Analysis and Environmental Stabilization Plan for Excess Personal Property (SFAAP), Plex Scientific, July
- Groundwater Study Workplan, Burns and McDonnell, August
- Site Safety and Health Plan for the Small Project Indefinite Delivery Type Contract (SPIDT) - SWMU 50, Bay West, Inc., October
- Background Investigation Report and Quality Control Summary Report Addendum, Law, November

1996 (cont.)

- Addendum and Quality Control Plan for RCRA Facility Investigation of 16 SWM (7, 8, 9, 16, 17, 23, 25, 26, 30, 33, 34, 35, 41, 42, 45 and 49), Burns and McDonnell, November
- Background Investigation Report and Quality Control Summary Report Addendum for Ecological Risk Assessment, Surface Water/Sediment Sampling and De Soto Park Sampling, Law Environmental, Inc., November

1997

- Community Relations Plan and Addendum, Burns and McDonnell, January
- Community Relations Plan and Community Relations Plan Addendum for the Non-Time Critical Removal Action of Explosives-Contaminated Buildings, SFAAP Burns and McDonnell, January
- RCRA Facility Investigation Report and Quality Control Summary Report Addendum - SWMU 50, Law Environmental, Inc., February
- RCRA Facility Investigation Report for SFAAP – General, Law Environmental, Inc., February
- RCRA Facility Investigation Report and Final Quality Control Summary Report Addendum - SWM 22 and 32, Law Environmental, Inc., March
- RCRA Facility Investigation Report and Quality Control Summary Report Addendum for SWM 10 and 11, Law Environmental, Inc., March
- Interim Measures Work Plan for SWMU 50 - Debris Removal and Stream Bank Stabilization, Bay West, Inc., April
- RCRA Facility Investigation Report and Quality Control Summary Report Addendum for SWMU 14, Law Environmental, Inc., April
- SFAAP, First Non-Time Critical Burn, 13 February 1997, Aerial Plume Emissions Measurement Report, Envirovisions, Inc., April
- RCRA Facility Investigation Report and Final Quality Control Summary Report Addendum - SWMU 21, Law Environmental Inc, May
- RFI Report Addendum and QUALITY CONTROL SUMMARY REPORT - SWMU 51, Burns and McDonnell, June
- RCRA Facility Investigation Report and Final Quality Control Summary Report Addendum - SWM 18 and 19, Law Environmental Inc., June
- Asbestos Location and OSHA Asbestos Compliance Plan, Koch Sulfur Products Company, Dalrymple Environmental, Inc., December
- Environmental Baseline Study - Transfer of SFAAP to Army Corps of Engineers, Army, December
- Groundwater Monitoring Report for the former Underground Storage Tank Site at the N-Line Jeep and Trailer Shop, Building 6866, Hercules Aerospace Company Ordnance Group, December

1998

- Environmental Baseline Survey - Oz Entertainment Company, Hercules, April

1998 (cont.)

- Corrective Measure Study Work Plan, SWM 10/11 and SWM 23/32, Burns and McDonnell, May
- Sunflower Army Ammunition Plant, Kansas, Environmental Baseline Survey Report, Aguirre Engineers, Inc.
- Quality Control Summary Report, Ecological Risk Assessment, Law Environmental, Inc., August
- Ecological Risk Assessment, RCRA Facility Investigation, Volume 1 - Text; Volume II - Tables/Figures; Volume III – Appendices, Law Environmental Inc., August
- Greenhouse Study - Phytoextraction of Lead from Contaminated Soils at SFAAP, For Army Environmental Center by Tennessee Valley Authority, August
- Hazardous and Medical Waste Study No. 37-EF-9063-99, Relative Risk Site Evaluation - SWM 53 and 54, US Army Center for Health Promotion and Preventive Medicine, November
- Work Plan for the Additional Investigation Activities at SWM 33, 34, and 35, Burns and McDonnell, December

1999

- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 1, Law Environmental Inc., February
- Corrective Measures Study - SWM 10/11 and 22/32, Burns and McDonnell, February
- Environmental Assessment Re GSA Disposal of SFAAP, For GSA by Louis Berger & Assoc and Dames & Moore, February
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 3, Law Environmental Inc., March
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 24, Law Environmental Inc., March
- Decision Logic Criteria for Environmental Stabilization Plan (ESP) Burns - Buildings with Asbestos-Containing Materials (ACM) – 1999, Alliant Tech Systems, March
- Work Plan for Supplemental RCRA Facility Investigation for SWM 14 and 21, Burns and McDonnell, March
- Facility Investigation and Final Quality Control Summary Report Addendum - SWM 4 and 5, Law Environmental, Inc., March
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 36, Law Environmental Inc., April
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 13, Law Environmental Inc., April
- Dioxin Background Study Report, EPA/Tetra Tech, April
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 6, Law Environmental Inc., May
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 48, Law Environmental Inc., May
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 47, Law Environmental Inc., May

1999 (cont.)

- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 31, Law Environmental Inc., May
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 27, Law Environmental Inc., May
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 2, Law Environmental Inc., May
- RCRA Facility Investigation Report and Final Quality Control Summary Report and Addendum - SWMU 12, Law Environmental Inc., May
- Focused Corrective Measures Study Work Plan SWMU 50, Burns and McDonnell, June
- Geology, Hydrogeology and Groundwater Quality Study, Burns and McDonnell, June
- Off-Site Well Inventory Report, Burns and McDonnell, August
- Finding of Suitability for Early Transfer (FOSET) – SFAAP, Army, August
- Contractor Workplan, Quality Control Plan Site Safety and Health Plan Addendum, SWMU 50, Environmental Chemical Corp, October
- Chemical Quality Management Plan, SWMU 50, Interim Removal, Environmental Chemical Corp, October
- Stabilization Treatability Study Report, SWM 10 / 11, IT Corporation, November
- Flocculation and Clarification Treatability Study Report - SWM 10 / 11, IT Corporation, November

2000

- Site Safety and Health Plan, SWM 10 / 11, IT Corporation, January
- Explosives Safety Submission Ordnance, Explosives Remedial Actions – SFAAP, IT Corporation, January
- Geology, Hydrogeology and Groundwater Quality Study, Burns and McDonnell, February
- Storm Water Pollution Prevention Plan, SWM 10 / 11, IT Corporation
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 52 (Paint Bay, Bldg 542 and Tire Shop), Burns and McDonnell, March
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 38 (Oil Separator), Burns and McDonnell, March
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 37 (Sandblast Area), Burns and McDonnell
- RCRA Facility Investigation Report; Addendum and Quality Control Summary Report for SWMU 46 (Decontamination Oven), Burns and McDonnell, April
- RCRA Facility Investigation Report; Addendum and Quality Control Summary Report for SWMU 39 (South Acid Area Drainage Ditch), Burns and McDonnell, April
- RCRA Facility Investigation Report; Addendum and Quality Control Summary Report for SWMU 15 (Waste Storage Magazine), Burns and McDonnell, April
- RCRA Facility Investigation Report; Addendum and Quality Control Summary Report for SWMU 43 (Tunnel Dryers), Burns and McDonnell
- RCRA Facility Investigation Report; Addendum and Quality Control Summary Report for SWMU 40 (Calcium Carbide Disposal Area), Burns and McDonnell, May

2000 (cont.)

- RCRA Facility Investigation Report; Addendum and Quality Control Summary Report for SWMU 20 (Ash Lagoons & Sludge Disposal Area), Burns and McDonnell, May
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 44 - Tank T784, Burns and McDonnell, June
- Site Specific Work Plan Addendum, Draft Geoprobe Investigation Plan and Draft Site Safety and Health Plan Addendum for SWM 13, 24, 41 and 50, Environmental Chemical Corp, September
- RCRA Facility Investigation Report Addendum for SWMU 16 - Temporary Waste Storage Magazines, Burns and McDonnell, October
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 49 - Road Just Southeast of the Sanitary Landfill, Burns and McDonnell, October
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 17 - G-Line Area Ditches, Burns and McDonnell, October
- Environmental Baseline Assessment for Koch Sulfur, Inc., Terracon, October
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWM 41 and 42 - Calcium Carbonate Cake and Temporary Sanitary Landfills, Burns and McDonnell, November
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 45 - Building 9040 Calcium Cyanamide Conveyors and Storage Units, Burns and McDonnell, November
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 25 - Nitrocellulose Area Ditches, Burns and McDonnell, November

2001

- Site Safety and Health Plan, SWM 10 & 11, IT Corporation, January
- Sampling and Analysis Plan, Volumes I & II, SWM 10 & 11, IT Corporation, January
- Quality Control Plan - Implementation of Corrective Measures at SWM 10 & 11, IT Corporation, February
- Treatability Planning & Reporting Documents, SWM 10 & 11, IT Corporation, February
- Lead Stabilization Work Plan, SWM 10 & 11, IT Corporation, February
- Project Closure Report for SWMU 50 Interim Removal, Volumes I & II, Environmental Chemical Corp., March
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWM 7, 8, and 9 - North Acid Area, Burns and McDonnell, June
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 30 - Pesticide Waste Handling Area, Burns and McDonnell, June
- RCRA Facility Investigation Report Addendum and Quality Control Summary Report for SWMU 26 - Single Base Area Wastewater Settling Pumps, Burns and McDonnell, June
- Characterization of Explosively Contaminated Sewer Lines, MKM Engineers, Inc., August
- Remedial Action Summary Report for SWM 10 & 11, IT Corporation, October

2001 (cont.)

- Site Safety and Health Plan for SWM 2, 18, 32, 33, 34, 35, IT Corporation, December

2002

- Interim Remedial Action Work Plan for SWM 18 and 19, IT Corporation, January
- Grazing Study Report - Sunflower AAP, Volume II, Burns and McDonnell, January
- Grazing Study Report - Sunflower AAP, Volume I, Burns and McDonnell, January
- Field Sampling and Analysis Work Plan for SWMU 2, IT Corporation, March
- ATSDR Public Health Assessment for Sunflower AAP, ATSDR, March
- Annual Landfill Inspection Report for SWMU 50, Environmental Chemical Corp, March
- Supplemental RFI Addendum and QCSR for SWM 33, 34, & 35 - Half Tanks and Settling Ponds - Volume II, Burns and McDonnell, April
- Supplemental RFI Addendum and QCSR for SWM 33, 34, & 35 - Half Tanks and Settling Ponds - Volume I, Burns and McDonnell, April
- Supplemental RFI Addendum and QCSR for SWMU 21 - The Contaminated Materials Burning Ground, Volume II, Burns and McDonnell, April
- Supplemental RFI Addendum and QCSR for SWMU 21 - The Contaminated Materials Burning Ground, Volume I, Burns and McDonnell, April
- Supplemental RFI Addendum and QCSR for SWMU 14 - the Static Rocket Test Area, Burns and McDonnell, April
- Initial Sampling Plan for SWM 13, 27 and 41, Environmental Chemical Corp, May
- Lead Analysis Project for SWM 32, 33, 34, and 35 (File), IT Corporation, May
- Site Specific Work Plan Addendum, Subsurface Investigation Plan and Site Safety and Health Plan Addendum, Long-Term Monitoring Operations/LTM for SWM 11, 13, 27, 41, 48 and 50, Environmental Chemical Corp, August
- Site Safety and Health Plan Addendum for Long-Term Monitoring of SWM 11, 13, 27, 41, 48 and 50, Environmental Chemical Corp, November
- Stream Study Work Plan, Final Phase I (SWMU 66), Shaw Environmental, December
- Interim Remedial Action Work Plan for SWM 32, 33, 34 and 35, Shaw Environmental, December

2003

- Subsurface Investigation Work Plan for SWM 13, 27, 41, and 48, Environmental Chemical Corp, January
- QCSR May-June 2003 Sampling Report, Corps of Eng, Environmental Chemical Corp, July
- Sampling and Analysis Plan for USACHPPM's Relative Risk Site Evaluation for SWM 56 - 67, and AOCs 1 – 22, ACHPPM, March
- Sunflower Installation Restoration Program, Sampling and Analysis Plan Volume II (Global Planning Document), Shaw Environmental, April
- Sunflower Installation Restoration Program, Sampling and Analysis Plan Volume I (Global Planning Document), Shaw Environmental, April
- Long Term Monitoring Work Plan for SWM 11, 33, 34, and 35, KC Dist, Corps of Eng, June

2003 (cont.)

- QCSR for Initial Sampling Event for SWM 13, 27, and 41, Environmental Chemical Corp, August
- QCSR and Subsurface Investigation for SWM 11, 13, 27, 41, and 48, Environmental Chemical Corp, September
- Long Term Monitoring Report for SWM 11 and 41, Environmental Chemical Corp, September
- Data Summary Report for SWM 13, 27, and 48, May 2002 Initial Sampling Event and Fall 2002 Subsurface Investigation, Environmental Chemical Corp, September
- Interim Remedial Action Report for SWM 18, 32, 33, 34, and 35, Shaw Environmental, September
- QCSR September 2003 Sampling Event, KC Dist, Corps of Eng, October
- Annual Waste Disposal Area Inspection for SWMU 50, KC Dist, Corps of Eng, October
- ACHPPM Relative Risk Site Evaluations for SWM 56 - 67, and AOCs 1 – 22, ACHPPM, November

2004

- Long Term Monitoring Report SWMU 11 2003, KC District, Corp of Eng, January
- Long Term Monitoring Report and QCSRs SWMU 11, KC District, Corp of Eng
- Field Sampling and Analysis Work Plan for SWMU 22 - Old Explosive Waste Burning Ground, Shaw Environmental, January
- Field Sampling and Analysis Work Plan RFI for SWMU 10 - F-Line Production Area (Upland Area), Shaw Environmental, January
- Field Sampling and Analysis Work Plan, RFI for SWMU 20 - Ash Lagoons and Sludge Disposal Area, Shaw Environmental, January
- Field Sampling Work Plan, RFI for SWMU 44 - Tank T784, Shaw Environmental, March
- Corrective Measures Implementation Work Plan for SWMU 22, Shaw Environmental, March
- Site-Wide Stabilization Treatability Study Work Plan, Shaw Environmental, March
- Treatability Study Field Sampling Plan (Site Wide), Shaw Environmental, March
- Field Sampling and Analysis Work Plan, RFI for SWMU 38 - Oil Separator, Shaw Environmental, March
- Fielding Sampling and Analysis Work Plan for SWMU 14 - Static Rocket Test Area, Shaw Environmental, April
- Sunflower Installation Restoration Program - Contractor Quality Control Plan (Global Planning Document), Shaw Environmental, April
- Fielding Sampling and Analysis Work Plan for SWMU 3 - Main Sewage Treatment Plant, Shaw Environmental, May
- Sunflower Installation Restoration Program - Safety, Health and Emergency Response Plan (Global Planning Document), Shaw Environmental, May
- Engineering Evaluation and Cost Analysis for On-Site and Off-Site Disposal of Non-Hazardous Contaminated Soils at SFAAP (CAMU Study), Shaw Environmental, June
- RCRA Long-Term Monitoring, Field Sampling and Analysis Work Plan for SWMU 41 - Calcium Carbonate Cake Landfill, Shaw Environmental, June

2004 (cont.)

- Long Term Monitoring Report SWM 33and 34 And SWM 33 and 35 3003, KC District, Corp of Eng, July
- Long Term Monitoring Report and QCSRs SWM 33 and 34 and SWM 33 and 35, KC District, Corp of Eng, July
- QCSR SWMU 11,33 and 35 June 2004 Sampling Event , KC District, Corp of Eng, August
- Field Sampling and Analysis Work Plan for SWM 60 and 61, and AOCs 3 and 13, Shaw Environmental, August
- Explosive Characterization Sampling Plan (Site Wide Explosive Safety Assessment), Shaw Environmental, August
- RFI Sites Field Sampling and Analysis Plan for SWM 1, 39, 45/47, Shaw Environmental, September
- Field Sampling & Analysis Work Plan, Groundwater Operable Unit No. 1, Shaw Environmental, October
- QCSR September 2004 Sampling Event, KC Dist, Corps of Eng, November
- Annual Waste Disposal Area Inspection for SWMU 50, KC Dist, Corps of Eng, November
- Field Sampling and Analysis Work Plan for SWMU 18 - Old/New Sanitary Landfills, Shaw Environmental, November
- Corrective Measures Study for SWMU 21, Shaw Environmental, November
- Field Sampling and Analysis Work Plan, RFI Addendum for SWMU 25 - Nitrocellulose Area Ditches, Shaw Environmental, December
- Field Sampling & Analysis Work Plan, Groundwater Operable Unit No. 2, Shaw Environmental, December
- Additional Characterization Investigation Report and Corrective Measures Work Plan, SWMU 10 - F-Line Uplands Building Foundations, Old Mechanized Roll Area, and New Mechanized Roll Area, Shaw Environmental, December

2005

- Field Sampling and Analysis Work Plan, RFI for SWMU 53 - Construction Debris Landfill, Shaw Environmental, January
- RFI Report Addendum and QCSR 20 - Ash Lagoons, Shaw Environmental, February
- RFI Report Addendum and QCSR for SWMU 52 - Paint Bay, Building 542 and Tire Shop, Shaw Environmental, February
- Field Sampling and Analysis Work Plan for SWMU 52 - Paint Bay Building 542 and Tire Shop, Shaw Environmental, February
- Soil Bioremediation Pilot Test Work Plan for SWMU 21 - Contaminated Materials Burning Ground, Shaw Environmental, March
- Field Sampling and Analysis Work Plan RFI Site for SWMU 21 - Contaminated Materials Burning Ground, Shaw Environmental, March
- Annual Waste Disposal Areas Inspection for SWMU 50, Shaw Environmental, March
- Supplemental Investigation Report and QCSR for SWMU 14 - Static Rocket Test Area, Shaw Environmental, April

2005 (cont.)

- Volume I Investigation Report, Corrective Measures Work Plan and QCSR for SWM 60 and 61, and AOCs 3 and 13, Shaw Environmental, April
- Volume II Investigation Report, Corrective Measures Work Plan and QCSR for SWM 60 and 61, and AOCs 3 and 13, Shaw Environmental, April
- Site-wide Stabilization Treatability Study Report, Shaw Environmental, June
- RFI Report Addendum and QCSR for SWMU 1 - Classification Yard, Shaw Environmental, June
- RFI Report Addendum and QCSR for SWMU 44 -Tank T784, Shaw Environmental, June
- Relative Risk Site Evaluation AOCs 1, 18,19,20,21 and SWMU 66, Army Corp of Engineers, July
- RFI Report Addendum and QCSR for SWMU 45 - Bldg 9040 and Conveyors/Storage Units, Shaw Environmental, August
- Explosive Safety Assessment Report, Shaw Environmental, August
- RFI Report Addendum and QCSR for SWMU 39 - South Acid Drainage Ditches, Shaw Environmental, September
- RFI Report Addendum and QCSR for SWMU 38 - Oil Separator, Shaw Environmental, September
- RFI Report Addendum and QCSR for SWMU 3 - Main Sewage Treatment Plant, Shaw Environmental, October

2006

- Corrective Measures Completion Report for SWMU 22 - Old Explosive Waste Burning Ground, Shaw Environmental, January

SUNFLOWER ARMY AMMUNITION PLANT

Installation Restoration Program Site Descriptions

PBC SUNFLOWER SITE WIDE GFPR

SITE DESCRIPTION

This AEDB-R site is for capturing the cost for the Performance Based Contract for cleanup of all of the former Sunflower Army Ammunition Plant. All of the costs for all of the AEDB-R sites are on this site only. This contract is a Guaranteed Fixed Price Remediation.

Per the Trust Agreement in the Remediation Services Contract between the Army and SRL (W52H09-5-D-5008) the Army agreed to pay SRL a certain amount of ER,A funds on the date the Contract was signed and will pay ER,A funds in certain amounts on certain dates in the future (annually). As the Army pays these yearly amounts they are deposited into a Trust Account. When the contractor does work they will send an invoice to the Army to certify for payment out of the Trust Account as milestones are achieved.

STATUSUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN:
Metals, VOCs, SVOCs, Pesticides, Dioxin, Explosives

MEDIA OF CONCERN:
Soil, Sediment, Groundwater, Surface Water

Phases	Start	End
RFA	200409	200504
DES	200508	200709
CMI(C)	200509	200809

RC DATE: 200809

CLEANUP STRATEGY

The contractor (SRL) will clean up all contaminated sites at the former SFAAP under the PBC. The Army's onsite Contracting Officer's Representative will oversee the contractors work and certify the contractor's invoices for payment out of the Trust Account. Cleanup/remediation work done by the contractor will be conducted in accordance with the consent order between KDHE and SRL.

The RC date in the STATUS box above reflects the date that this site will be fully funded under the PBC. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-001
CLASSIFICATION YARD

SITE DESCRIPTION

The Classification Yard is a 64 acre railroad switchyard in the northeastern portion of SFAAP. Incoming raw materials were sorted in this area for diversion to the appropriate receiving facility within SFAAP. The area operated from 1942-1991. Rail operations through the area stopped in 2001.

This area produced no hazardous wastes; however, as a result of handling incoming raw materials which may be classified as hazardous, the area had the potential for contamination. Although no spills were reported, the Classification Yard was identified as an area of potential contamination in the 1980 Installation Assessment because of the materials handled and the length of time the area had been in e. A previous RFI indicated no contamination above industrial land e standards.

STATUSUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN:
Solvents, Metals

MEDIA OF CONCERN:
Soil, Groundwater

Phases	Start	End
RFA	199307	199311
CS	199408	199805
RFI/CMS	199510	200701

RC DATE: 200701

KDHE requested additional groundwater data downgradient of this site. Surface soil sampling was conducted at the bare spots and other locations to characterize the areas. The RFI report addendum in June 2005 found no soil contamination above residential levels.

CLEANUP STRATEGY

Approximately 7500 cy of coal dust will be removed and disposed of off-site. The no further action closure report will be finalized.

The RC date in the STATUS box above reflects the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-002
RIVER WATER TREATMENT PLANT LAGOONS

SITE DESCRIPTION

The River Water Treatment Plant (RWTP) (~19 acres), located in the northern portion of SFAAP near the Kansas River, was constructed and started operations in 1943. Water from the Kansas River was treated by lime addition, sedimentation, carbon filtration and chlorination. Sludge from the RWTP was partially used to construct two unlined lagoons south of the plant (upper lagoon 1,269,000 ft3, lower lagoon 1,952,000 ft3). Lime sludge was flushed from the RWTP flocculation basins into the lagoons (AEHA, 1978). Water treatment operations at the RWTP ceased in 1971, thus eliminating the effluent of lime sludge from the RWTP into the lagoons. In the late 1970s, because of the start up of Nitroguanidine (NQ) production, the lagoons received about 200,000 gallons per day of discharge from the NQ Area. This wastewater included discharges from tank T784 (SWMU 44) which stored non-contact cooling water, steam condensate, cooling tower blowdown, and ammonia stripper discharge from the NQ production process. The RWTP was leased to a private firm for commercial aquaculture purposes (terminated in September 2001).

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Soil, Groundwater Surface Water, Sediment

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199611	200801

RC DATE: 200801

Both lagoons support a variety of aquatic life. Beaver, muskrat, turtles, sunfish and bass, along with aquatic vascular plants and summer algal blooms are commonly observed.

Initial RFI results indicated the need for additional GW and sediment sampling. Additional RFI data indicated elevated levels of arsenic in deep subsurface soils and the bedrock interface.

CLEANUP STRATEGY

Remove accumulated sludge and backfill/regrade (12,500 cy). Revise risk assessment to incorporate arsenic-related concerns. This site was included in an installation-wide stream study. LTM is anticipated.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-003
MAIN SEWAGE TREATMENT PLANT DRYING BEDS

SITE DESCRIPTION

The main Sewage Treatment Plant (STP) is located on ~10 acres in the northeastern portion of SFAAP. Operations began in 1942. The STP stopped receiving human waste in 2002. The plant treated sanitary wastewater from the installation. Following treatment, water from the plant was discharged into Kill Creek. During the 1950s and 1960s, solids (sludge) from the STP were placed in drying beds east of the Imhoff tank. The digester was last emptied in 1974. Wastewater from various non-explosive production facilities and laboratories, including a photographic laboratory, processed at the plant may have contained hazardous constituents. According to a 1974 report, no chlorination was provided.

This site consists of the drying beds east of the Imhoff Tank. Small areas of contamination were found during the initial RFI activities; however, further soil investigation was conducted to fully delineate the site. The RFI report addendum was completed in October 2005.

Site was designated as RC because this site was fully funded under the PBC, and considered a "buyout" site. Construction activities are ongoing.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Pesticides, Metals

MEDIA OF CONCERN: Soil, Sediment

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199511	200601

RC DATE: 200601

CLEANUP STRATEGY

Sediment removal (~500 cy) with off-site disposal is required.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-004
POND A AND SLUDGE DISPOSAL AREA

SITE DESCRIPTION

Pond A (~2.5 acres) is an unlined pond located in the north central portion of SFAAP encompassing ~86,200 ft^2. Pond A was constructed in 1942 and received wastewater from nitrocellulose (NC) production during periods 1943-1960 and 1965-1971, and water discharged from the NQ Pilot Plant from 1980-1984. Pond A was used for the sedimentation of solids and equalization of wastewater from the NC area prior to lime treatment and subsequent discharge to Pond B (SWMU 6). In addition, Pond A received wastes from many other areas of SFAAP, including the NQ Pilot Plant. The pond now functions as part of the natural drainage system receiving storm sewer outfall from various parts of SFAAP, including drainage from the Industrial Wastewater Treatment Facility Area.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS: Nitrocellulose, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199610	200801

RC DATE: 200801

An unknown quantity of sludge dredged from Pond A was landfilled at the Sludge Disposal Area, located north of, and adjacent to, the pond. Initial RFI (March 2000) results indicated elevated levels of nitrocellulose.

CLEANUP STRATEGY

All underground piping that is associated with the neutralization basin will be handled under SAAP-005.

Install bedrock well to ensure no contamination has reached a lower aquifer. Investigate sediment and surface water contamination in ditch between Ponds A and B. Approximately 4,000 cy of soil may be removed. A pond closure plan will be developed and the pond will be closed. LTM is not anticipated due to insolubility of NC.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-005
ACID SEWAGE DISPOSAL PLANT

SITE DESCRIPTION

The Acid Sewage Disposal Plant is located on ~1 acre on the southeast edge of Pond A. It was constructed in 1942 to treat the acidic wastewater flowing into Pond A from the NC area and had two periods of operation: 1943-1960 and 1965-1971. The pH of Pond A effluent was adjusted in the neutralization unit before draining into Pond B (SWMU 6). Neutralized wastes and unsettled flocculent were discharged to an open drainage ditch leading to Pond B. During a visual inspection in 1990, a white sludge identified as "pebble lime" was piled up along the southeast edge of the plant.

Initial RFI data indicates elevated levels of nitrocellulose in soil.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, Nitrocellulose

MEDIA OF CONCERN: Soil, Sediment

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199610	200801

RC DATE: 200801

CLEANUP STRATEGY

The underground piping and the initial portion of the connecting ditch to Pond B will be remediated under this site.

Further investigation (neutralization basins) and a Corrective Measures Study will be completed. Approximately 5,000 cy of soil will be removed.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-006
POND B AND SLUDGE DISPOSAL AREA

SITE DESCRIPTION

SAAP-006 (~38 acres) is located in the east-central portion of SFAAP, downstream of Pond A. Pond B is an unlined impoundment situated upon limestone bedrock with a surface area of ~9 acres and a capacity of ~2.2 million ft^3 (16.5 million gal). The pond was constructed in the 1940s for sedimentation of solids from the neutralized wastewater discharged from the Acid Sewage Disposal Plant (SWMU 5). Unknown quantities of sludge were occasionally dredged from pond B and landfilled west of the pond. Pond B discharges into Kill Creek.

The pond supports a variety of aquatic life. Large fish were observed in the pond during a site visit in 2002.

Initial RFI results indicated elevated levels of manganese in groundwater.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS: Solvents, Nitrocellulose, Nitroglycerin, Metals,

MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment

PHASES	Start	End
RFA	197907	199009
CS	199405	199805
RFI/CMS	199611	200801

RC DATE: 200801

CLEANUP STRATEGY

Drain and dredge the pond. Dewater and dispose of sludge from the pond and associated sludge disposal areas as special waste.

Additional investigation, including installing monitoring wells, is planned. Approximately 42,000 cy of soil will be removed, treated and disposed of off-site. A pond closure plan will be developed.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-007
NORTH ACID AREA- CHROMATE AREA

SITE DESCRIPTION

The North Acid Area is located in the north-central portion of SFAAP. The North Acid Area manufactured ammonium nitrate liquor from 1947 to 1948 and was dismantled in 1958. The North Acid Area contains 3 SWM: the Chromate Area (SAAP-007), the Chromate Concentration Pond (SAAP-008) and the Wastewater Treatment Lagoon (SAAP-009).

The Chromate Area consists of ~0.5 acre within the North Acid Area. The Chromate Area is the location of the former cooling water treatment unit, including a cooling tower in which chromium-contaminated wastewater was reportedly generated through the e of corrosion inhibitors on the tower. Chromate liquid may have been disposed of in pipes subsequently left buried in the area and the potential is present for heavy metal contamination. When the site was dismantled in 1958, the 2 wastewater collection basins were left in place. In 1982 and 1983, chromium-contaminated water was removed from the basins. Water continues to accumulate in the basins. A geophysical survey was conducted and several subsurface anomalies were identified, potentially indicating buried process pipelines. Initial RFI activities indicate the need for additional soil and surface water delineation due to heavy metal and PAH contamination. Initial sample data was found to be unreliable; therefore, the site must be re-sampled.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: PAHs, Metals

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

Phases	Start	End
RFA	197907	199201
CS	199610	199805
RFI/CMS	199807	200609
DES	200508	200701
CMI(C)	200508	200701

RC DATE: 200701

CLEANUP STRATEGY

Additional RFI activities will be performed to complete nature and extent determination and to confirm source areas. Approximately 7,200 gal of liquid waste will be removed and disposed of off-site as hazwaste. The removal action will include excavation of debris (subsurface anomalies).

Approximately 550 cy of soil will be excavated, treated, and disposed off-site. Any existing surface water in the basins will be removed. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-008
NORTH ACID AREA- CHROMATE CONC. POND

SITE DESCRIPTION

The North Acid Area is located in the north-central portion of SFAAP. The North Acid Area manufactured ammonium nitrate liquor from 1947 to 1948 and was dismantled in 1958. The North Acid Area contains 3 SWM: the Chromate Area (SAAP-007), the Chromate Concentration Pond (SAAP-008) and the Wastewater Treatment Lagoon (SAAP-009).

The Chromate Concentration Pond is known to have been located within the North Acid Area, but because the pond has been drained, its location remains uncertain. Reportedly, chromate was used as a corrosion inhibitor on the cooling towers at the Nitrogen Fixation Plant.

Chromate salts from the neutralization process used to treat chromium sludge were reportedly stored in drums located in the magazine area. These salts proved non-hazardous and SFAAP received State approval to dispose of the salts in an on-site landfill.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS: Metals, PAHs

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

Phases	Start	End
RFA	197907	199009
CS	199608	199805
RFI/CMS	200001	200609
DES	200508	200701
CMI(C)	200508	200701

RC DATE: 200701

The risk assessment found that the primary risk drivers were hexavalent chromium in surface water and PAHs in surface soil.

Initial sample data was found to be unreliable; therefore, the site must be re-sampled.

CLEANUP STRATEGY

Additional RFI activities will be performed. Approximately 3,600 gal of liquid waste will be removed and disposed of off-site as hazwaste. Approximately 550 cy of soil will be excavated, treated, and disposed off-site. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-009
N. ACID AREA- WW TREATMENT LAGOON

SITE DESCRIPTION

The North Acid Area is located in the north-central portion of SFAAP. The North Acid Area manufactured ammonium nitrateliquor from 1947 to 1948 and was dismantled in 1958. The North Acid Area contains 3 SWM: the Chromate Area (SAAP-007), the Chromate Concentration Pond (SAAP-008) and the Wastewater Treatment Lagoon (SAAP-009).

Wastewater treatment practices for the North Acid Area were not documented. It is believed the processes practiced were similar to the traditional wastewater treatment operations practiced in the South Acid Area. This treatment involved lime addition to the wastewater, followed by discharge to a holding pond or lagoon.

The South Acid Area produced calcium sulfate sludges. Similar sludges are believed to have been produced in the North Acid Area. In addition, there is a possibility that chromate-contaminated water may have been released as waste to this lagoon.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: PAHs, Metals

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

Phases	Start	End
RFA	197907	199009
CS	199610	199805
RFI/CMS	200001	200609
DES	200508	200701
CMI(C)	200508	200701

RC DATE: 200701

The risk assessment found that primary risk drivers were hexavalent chromium in surface water and PAHs in surface soil.

Initial sample data was found to be unreliable; therefore, the site must be re-sampled.

CLEANUP STRATEGY

Additional RFI activities will be performed. Approximately 7,200 gal of liquid waste will be removed and disposed of off-site as hazwaste. Approximately 550 cy of soil will be excavated, treated, and disposed off-site. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-010
F-LINE AREA DITCHES

SITE DESCRIPTION

The F-Line Area is located in the east-central portion of SFAAP. This site consisted of sumps, troughs, pipes and other conveyances and ditches used for the management of wastewater from operations in the F-Line Area. F-Line included a blender hoe where explosive propellant was received and blended with lead salicylate; rolled into sheets; slit and wound into carpet rolls; and extruded by large hydraulic presses into solid propellant grains. Any propellant that was on the floor was washed into the drain with the wastewater. Most of the effluents were then discharged, via unlined ditches, to settling ponds and eventually to Spoon and Kill Creeks; however, one group of the ditches discharged directly to a field adjacent to Spoon Creek. The F-line ditches were located on the east side of the F-Line press hoes. Occasionally, propellant solids settled in these ditches before reaching the ponds. The ditches were used periodically from 1943 to 1971. Several ditches served as discharge points for runoff from storm drains along the streets in the area.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS: Solvents, Ordnance Compounds, Nitrates

MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment

PHASES	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199806	200410
DES	200410	200501
CMI(C)	200410	200509
LTM	200602	200701

RC DATE: 200509

The draft RFI indicated nitroglycerin in soil at concentrations that exceed EPA's target risk range for carcinogenic risk. Lead was found at concentrations exceeding EPA and KDHE guidance values. The Statement of Basis was completed and recommended soil remediation by excavation, stabilization and disposal. A surface soil (~24,000 cy) removal was completed in 2001. In 2001, the size of this site was expanded by ~25 acres to a total area of ~128 acres and includes 56 additional building foundations. Approximately 10 acres around the building foundations required additional investigation.

AOC-6 is being handled under this site. Completed site investigation of 10 additional acres of the site in FY04. Soil removal was completed in March 2005, and the report is expected to be completed by the end of FY06.

CLEANUP STRATEGY

The LTM end date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE. Five years of LTM may be conducted.

SAAP-011
F- LINE AREA SETTLING PONDS

SITE DESCRIPTION

The F-Line Area Settling Ponds (~5 acres total) are located in the east central portion of SFAAP. Wastewater from the F-Line production facilities drained into ditches, which, for the most part, led to the six F-Line Area Settling Ponds (1A, 1B, 2A, 2B, 3A, and 3B) and two Blender Ponds (4A and 4B). The six Settling Ponds were unlined earthen ponds equipped with stand pipes to permit settling of solids and decantation of water. The northernmost Settling Ponds (3A and 3B) were constructed in 1942 and abandoned in 1971. The remaining ponds were operational from 1943 to 1969. These ponds were used to settle propellant solids from wastewater generated during production of propellants. The ponds were also part of the natural drainage system, ultimately discharging into Spoon and Kill Creeks. During past operations, SFAAP occasionally removed the propellant solids which had accumulated in the ponds and burned them at the burning grounds. The pond sediments were contaminated with uncolloided propellant with lead salts, phthalates and NC from the manufacturing process.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS: Ordnance Compounds, Metals

MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment

PHASES	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199601	199907
DES	199907	199908
CMI(C)	199906	200109
LTM	200110	200801

RC: 200109

The RFI indicated nitroglycerine in soil at concentrations that exceed EPA's target risk range for carcinogenic risk. Lead was also found at concentrations exceeding EPA and KDHE guidance values. A surface soil (4,500 cy) removal was completed in 2001.

CLEANUP STRATEGY

The LTM end date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE. Four years of LTM will be conducted.

SAAP-012
PYOTTS POND AND SLUDGE DISPOSAL AREA

SITE DESCRIPTION

Pyotts Pond and Sludge Disposal Area (~12 acres) is located in the east-central portion of SFAAP. Pyotts Pond is an unlined, earthen impoundment with a surface area of ~1.7 acres and a capacity of ~697,000 ft^3 /5.2 million gal. The pond was constructed in 1968 to aide in pollution control. In the past it has received drainage from the South Acid Area, the Paste Mix Area, the NC Area, the Solvent Area and the NG Area, as well as non-contact cooling water, boiler blowdown and some process water from the South Acid Area. Neutralization of water entering the pond resulted in an accumulation of calcium sulfate sludge, which was periodically dredged and landfilled adjacent to the pond to the north. The pond was used primarily for flow control and emergency containment for acid manufacturing. Effluent from the pond drains northeast to Kill Creek, and was monitored by NPDES Outfall 004. The pond supports an active aquatic ecosystem. PCBs were detected in two pond sediment samples.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, Nitroguandine, PAHs, Nitrocellulose

MEDIA OF CONCERN: Soil, Sediment, Surface Water, Groundwater

PHASES	Start	End
RFA	199707	199009
CS	199408	199805
RFI/CMS	199606	200701

RC DATE: 200701

Initial RFI results indicated elevated levels of mercury and nitroguanidine in the surface water. Groundwater contained nitroguanidine, and sediments contained elevated levels of PAHs and nitrocellulose.

CLEANUP STRATEGY

Additional RFI activities will be performed to fully define the extent of contamination to characterize the sludge in the pond. A risk assessment revision will require additional surface water and groundwater sampling. A pond closure plan will be developed and the pond will be closed. Approximately 7,000 cy of sediment and soil will be removed, treated and disposed of off-site. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-013
SOUTH ACID AREA LWTP EVAP. LAGOONS

SITE DESCRIPTION

The South Acid Area LWTP Evaporative Lagoons (32 acres) were located in the east-central portion of SFAAP. The Liquid Waste Treatment Plant (LWTP) consisted of five aboveground tanks: three for treating wastewater, one for slurrying lime, and one for feeding wastewater to be treated. In addition, there were four unlined, earthen cells used as Evaporative Lagoons associated with the LWTP. e of the LWTP and lagoons began in 1979. Volumes of waste treated at the LWTP varied with the need of production operations. The plant treated up to 1.5 million gallons of corrosive wastewater each month. In the summer of 1986, the lagoons were reportedly nearing their effective capacity, and the wastewater from the lagoons was being applied to land within the plant boundaries. Land application of wastewater had been performed in many areas of SFAAP, including the open areas in the western and southern portions of the NQ production area.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS: Metals, Nitrates

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
RFA	197907	199009
CS	199408	199805
IRA	199810	199909
LTM	199910	200701

RC DATE: 199909

In a letter dated March 11, 1996, KDHE approved a schedule of work for remediation of the lagoon sludge and dismantlement of the lagoons. This action partially fulfilled KDHE requirements for lagoon closure. This work was completed in August 1999.

CLEANUP STRATEGY

Additional requirements to complete closure of the lagoons include groundwater monitoring at selected sites downgradient of the lagoons for a period of not less than five years, and submittal of a final work plan for closure activities consistent with KDHE's pond closure/sampling verification plan. The lateral extent of the plume has not been determined. Ten years of LTM will be conducted.

The LTM end date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-014
ROCKET STATIC TEST AREA

SITE DESCRIPTION

The Rocket Static Test Area is located in the east-central portion of SFAAP. It encompasses approximately seven acres in the northeastern portion of the Proving Ground area. The site includes four firing platforms. Two outdoor firing platforms are located immediately north of each of the two Rocket Static buildings.

The Proving Ground was used to conduct proof and surveillance tests of SFAAP manufactured powder and propellants common to cannon and rocket artillery. Tests were conducted between 1965 and 1971.

Phase I and II RFI sampling indicated lead, nitroglycerine, propellants, and phthalates in surface soil above action levels. Lead and nitroglycerine were found in the groundwater above action levels. Additional soil and surface water sampling was completed in FY04. RFI report addendum was completed in April 2005.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Nitroglycerine, Propellants

MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199810	200510

RC DATE: 200510

CLEANUP STRATEGY

Remedial activities will consist of soil excavation, treatment and off-site disposal of ~200 cy of soil. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-015
WASTE STORAGE MAGAZINES

SITE DESCRIPTION

The Waste Storage Magazines (57 acres) are located in the southeast portion of SFAAP, and are also known as the J-Magazine Area Buildings. The buildings included in this SWMU are J-117, J-118, J-119, J-120, J-121, J-122, J-124, J-127, and J-128. All magazines used natural lighting to preclude accidental detonation of explosives, are secured with locking doors, and have concrete floors with secondary containment. Materials designated to be stored in each magazine included production waste from propellant manufacturing, spent solvents, and other explosive and hazardous waste.

During a site inspection in 1990, rust-colored stains were noted on the concrete loading pad at J-127.

Initial sample data was found to be unreliable; therefore, the site must be re-sampled.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Pesticide

MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment

PHASES	Start	End
RFA	197907	199009
CS	199509	199805
RFI/CMS	200001	200701

RC DATE: 200701

CLEANUP STRATEGY

A RFI will be performed.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-016
TEMPORARY WASTE STORAGE MAGAZINES

SITE DESCRIPTION

Most of the Temporary Waste Storage Magazines (79 acres) are located in the southwest-central portion of SFAAP. This includes the B-Area Storage Buildings B-14, B-16, B-20, B-21 and B-22. Also included are J-125 and 181-2. Building 181-2 is located in the central portion of SFAAP. Building 181-2 is an inactive 12 x 15 ft metal structure that was used to store spent degreasing solvents. The building has a concrete floor and is surrounded by an earthen dike. The solvents which were stored in 181-2 were transferred in 1984 to Building J-125, where temporary spill containment was provided. When the upgrading of J-124 was complete, the solvents were then transferred from J-125 to J-124. Over time, 181-2 contained ~550 gallons of spent degreasing solvents.

During a site visit in 1990, no signs of past releases were evident. It was noted, however, that the earthen dike for spill containment for Building 181-2 was inadequate.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Metals, Pesticides, Solvents

MEDIA OF CONCERN: Soil, Sediment, Groundwater, Surface Water

Phases	Start	End
RFA	197907	199009
CS	199610	199805
RFI/CMS	200001	200701

RC DATE: 200701

Initial sample data was found to be unreliable; therefore, the site must be re-sampled.

CLEANUP STRATEGY

A RFI will be performed.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-017
G-LINE AREA DITCHES

SITE DESCRIPTION

The G-Line Area Ditches (~284 acres) are located in the southcentral portion of SFAAP. It was a solvent propellant area. G-Line operated from 1943-1948, and 1953-1960. It was reported that during the 1940s, the G-line NC wringers overflowed, and NC fines had been observed along drainage ditches from the area leading to Kill Creek. It is likely that G-Line Area ditches received the same types of materials and followed the same historical wastewater treatment practices as the F-Line Area. The G-Line area is situated close to the basin divide between flow westward to Captain Creek and flow eastward to Spoon and Kill Creeks. Consequently, it is possible for contamination to migrate in either direction depending on the location of the source of contamination in the G-Line area. It is possible that small amounts of propellant solids containing lead salts may have settled in these ditches.

Initial sample data was found to be unreliable; therefore, the site must be re-sampled.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS: Solvents, Nitrocellulose, Metals

MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment

Phases	Start	End
RFA	197907	199009
CS	199610	199805
RFI/CMS	200001	200508

RC DATE: 200508

CLEANUP STRATEGY

A RFI will be performed. A soil removal of ~11,000 cy may be required. Soil will be disposed of off-site. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-018
OLD/NEW SANITARY LANDFILLS

SITE DESCRIPTION

The entire Landfill Area encompasses ~50 acres located about 1 mile west of the NG Area near the central-western border of SFAAP. However, only 31 acres make up the Old/New Sanitary Landfills. The landfills employed a trench-type operation. Several types of landfills are included in the Landfill Area: the sanitary landfill (31 acres); the asbestos landfill (1 acre) and the ash landfill (19 acres, SAAP-019). This Landfill Area began operation in 1943. Prior to the designation of the New Sanitary Landfill in 1967, refuse of all types was buried at a site just south of the new landfill. No records from the Old Landfill were available. SFAAP no longer uses the New Sanitary Landfill; currently, waste is disposed off-site. Although there was no hazardous waste placed in either landfill, there is one area reported to have received containers of a lead compound east of the landfill, and 2 areas with known asbestos waste near the Sanitary Landfill.

STATUSUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS: Dioxin, Furans, Lead

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199810	200609
DES	200508	200801
CMI(C)	200508	200801

RC DATE: 200801

The RFI report states that the primary concerns at SFAAP-018 and 019 are the constituents detected in groundwater (sulfide; cis-1,3-dichloropropene and ammonia nitrogen) and dioxins/furans in the shallow soil. Institutional controls have been implemented (fencing) to control site access. An IRA for erosion control was completed in FY02.

Shallow groundwater flowing through a sand lens within the site complicates remedial action. Additional RFI activities were performed in FY05 to delineate the lateral extent of the disposal cells, and groundwater characterization. The RFI report addendum will be completed in FY06.

CLEANUP STRATEGY

To reduce groundwater flow through the site, remedial action activities will include construction of a landfill cap and a French drain or other feature. Thirty years of LTM will be required. The abandonment of all installation wells will be funded under this site.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-019
ASH LANDFILLS

SITE DESCRIPTION

There are two, unlined ash landfills. SAAP-019 (~19 acres) is located north of the Sanitary Landfill, in the central-western portion of SFAAP. The area of SAAP-019 adjacent to SAAP-018 will be addressed under SAAP-018. The other landfill is located southeast of Power Hoe #1 (~1 acre).

It has been reported that these landfills were used prior to 1966. The ash landfills contain unknown quantities of fly ash from the ash-sluice system and coal fines from the coal pile. Fly ash sometimes contains heavy metals.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS: Metals

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
RFA	197907	199009
CS	199408	199605
RFI/CMS	199606	199706
DES	200508	200509
CMI(C)	200508	200509

RC DATE: 200509

CLEANUP STRATEGY

In the area southeast of Power Hoe #1, ~1,000 cy of material will be excavated and disposed of off-site.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-020
ASH LAGOON (AND SLUDGE DISPOSAL AREA)

SITE DESCRIPTION

The Ash Lagoons and Sludge Disposal Area are located on 15 acres in the north-central portion of SFAAP. There are four Ash Lagoons, all are 15 feet deep. Lagoon 165-1 is 103,600 ft^2, Lagoon 165-2 is 118,900 ft^2, Lagoon 165-3 is 95,000 ft^2, Lagoon 165-4 is 10,000 ft^2. These lagoons began operation in 1979 to collect fly ash and bottom ash from the boiler hoe (Power Hoe #1) via an ash-sluice system. The ash wastes (which may contain heavy metals) were allowed to settle out in the lagoons and the slightly alkaline wastewater was filtered and recycled back to the boiler hoe. Lagoons 165-1, 165-2, and 165-3 were periodically dredged and the sludge was landfilled in the Ash Landfill (SWMU 19). The lagoons are located just south of Pond A; however, discharge most likely flowed in the direction of the topographic slope to Pond B, located 2,000 feet east of the lagoons. Reports from site visits in 1987 and 1990 both indicated that the embankments of the lagoons appeared to be in good condition. The lagoons are reportedly unlined; however, logs from a 1992 site visit indicated one lagoon appeared to have a liner. Unlined lagoons present a pathway for constituents to migrate into the groundwater.

Initial sample data was found to be unreliable; therefore, the site was re-sampled. The RFI Addendum was completed in February 2005.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS: Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	197907	199009
CS	199509	199805
RFI/CMS	199604	200410
DES	200507	200508
CMI(C)	200507	200508

RC DATE: 200508

CLEANUP STRATEGY

Ash from the lagoons will be excavated and disposed (55,000 cy) and the lagoons will be clean closed.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-021
CONTAMINATED MATERIALS BURNING GROUND

SITE DESCRIPTION

The Contaminated Materials Burning Ground consists of ~10 acres located in the west central portion of SFAAP. The site was brought into operation in 1943 to decontaminate scrap metal (which was later salvaged) and to burn other combustible material that had been contaminated with explosives or propellants. Prior to 1970, burning of contaminated materials occurred in two open trenches. However, in about 1970, two unlined 30 x 300 ft pads were installed where the trenches were located. The pads were separated by an earthen berm. Contaminated material accumulated at the site until the pad was full, which generally took ~1-2 months. Burning was initiated using diesel fuel, waste oils, and scrap wood (including telephone poles). SFAAP randomly sampled the remainder of the residue for TCLP metals (leachable), and upon negative results disposed the ash in the sanitary landfill. After one pad was burned, the other pad began receiving materials for the next burn. During a site visit in 1990, burn areas were observed away from the main burn pads.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Petroleum Hydrocarbons, Dioxins, Solvents, VOCs

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199601	200411
DES	200505	200601
CMI(C)	200505	200601

RC DATE: 200601

Also located on the site was an open top tank, ~8 ft in diameter, which was used to burn waste solvent. Adjacent to the tank was an elevated platform which appeared to have been used as an unloading dock for liquids to be emptied into the tank. At the time of a 2001 site visit, the tank contained water.

Groundwater and surface water runoff from the burn area flow northwest to Captain Creek or the adjacent oxbow.

Phase I & II RFI results indicated the presence of dioxins, metals, solvents, and petroleum hydrocarbons in soil. Petroleum hydrocarbons and volatile organic compounds were detected in groundwater and surface water. Additional sampling was completed in spring 2003. An ex-situ bioremediation pilot test for TPH, VOC and PAHs in soil was conducted FY04.

Approximately 5,000 cy of POL-contaminated soil was excavated and bioremediated in FY04 (from Area D). The CMS was completed in November 2004. No contamination was detected at Area C.

SAAP-021
CONTAMINATED MATERIALS BURNING GROUND

CLEANUP STRATEGY

Remedial action will consist of excavation and disposal of ~8,000 cy of wastes (Areas E and F). An additional 2,400 cy is anticipated from Area A & B. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-024
NITROGLYCERINE AND PASTE MIX AREAS

SITE DESCRIPTION

The NG and Paste Mix Area (149 acres) is located in the central portion of SFAAP. NG manufacturing in this area began in 1943 and continued until 1971. Two operating lines provided nitrated glycerine for e in the paste mix area. There were several recorded instances where NG spilled onto the soil in the NG area. The amount of NG spilled ranged from one pound to a 1,200 pound spill in August of 1944. This site drains into Pyotts Pond. The buildings have been removed.

Field observations in 1985 indicated the main ditch contained between ten and fifteen inches of stagnant water, with grass present throughout most of the length.

Investigation activities identified 11 sumps as possible explosive hazards. The sumps have been fenced to limit access. Remote sampling of the 11 sumps and ditches in FY04 indicated that NG concentrations are well below explosive levels and therefore no Explosive Safety Submission is required. Elevated levels of lead in soil and surface water were detected, probably resulting from drainage from the paste mix area. This site also includes the ditches that the 11 sumps drained into, and the areas immediately around the buildings, due to documented spills.

This site also includes potential residual contamination in the paste mixing areas.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Solvents, NG

MEDIA OF CONCERN: Soil, Groundwater, Surface Water, Sediment

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	199806	200701

RC DATE: 200701

CLEANUP STRATEGY

Additional RFI investigations will be performed to fully define the extent of contamination around the paste mix buildings, nitrators, ditches, and sumps. Remedial activities will include excavation, treatment (blending) and hauling ~15,000 cy of materials to an off-site disposal facility. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-025
NITROCELLULOSE AREA DITCHES

SITE DESCRIPTION

The NC Area Ditches (4,100 linear feet) are located in the north central portion of SFAAP. This site consists of the ditches leading from the NC Area to Pond A. NC is prepared by the reaction of cotton linters (cellulose) and a mixture of nitric and sulfuric acids. NC was produced during two periods, 1943 through 1960, and 1965 through 1971. Nitrocellulose was detected in the ditch sediments during initial RFI activities.

Initial sample data was found to be unreliable; therefore the site must be re-sampled. Currently, the site is being re-sampled with report to follow. Additional RFI activities were performed to fully define the extent of contamination in FY05. RFI report addendum will be completed in FY06.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Nitrocellulose

MEDIA OF CONCERN: Sediment, Groundwater

PHASES	Start	End
RFA	197907	199009
CS	199610	199805
RFI/CMS	200001	200509
DES	200508	200509
CMI(C)	200508	200509

RC DATE: 200509

CLEANUP STRATEGY

Remedial activities will include excavation, treatment and disposal of ~1,500 cy (2,500 linear feet of ditch soil) of contaminated sediment. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-026
SINGLE BASE PROPELLANT AREA SUMPS

SITE DESCRIPTION

The Single Base Propellant Area (501 acres) consists of a series of buildings in the north-central portion of SFAAP. Single base propellant for small arms, cannon, and rockets was produced in this area during the periods of 1943-1948, and 1951-1960. Solvents (acetone, alcohol, ether) were used in the Single Base Propellant process. There were four different types of production buildings in this area numbered 1600, 1650, 1700 and 1725 series. There were wastewater sumps adjacent to each of the 1600 and 1650 series buildings, which were designed to settle out solids from the building's wastewater. Flow equalization tanks were located adjacent to each of the 1700 and 1725 series buildings. Each of these tanks was covered by an open wooden grate. Wastewater from the sumps and tanks was discharged to a collection sewer, which eventually discharged to open ditches. These ditches discharged west into Captain Creek. The three southeast buildings' waste-water drained east and eventually discharged into Pond A. At the time of the AEHA study in 1985, all the sumps contained standing water, soil, and pieces of rotted wood from the baffles, all of which appeared to have partially decayed. The buildings in this area were undergoing removal via demolition and burning in 1990. At the time of the 1992 site visit, some of the buildings which fed the sumps had already been removed. Remediation will consist of soil removal from impacted areas outside the building foundations and drainage areas. Initial samples were found to be unreliable; therefore, the site must be re-sampled.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, SVOCs, Propellants

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	197909	199909
CS	199610	199808
RFI/CMS	200001	200701

RC DATE: 200701

CLEANUP STRATEGY

Additional RFI sampling activities will be performed to fully define the extent of contamination around building foundations and ditches. Visual inspections will be conducted in areas not sampled. Remedial activities will include excavation and disposal of ~2,400 cy of contaminated soil around the building foundations. Confirmatory sampling for metals, phthalates, and NC will be conducted at 50-foot intervals in ditches and one sample per building sump. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-027
NQ AREA SAC & LWTP EVAP. LAGOONS

SITE DESCRIPTION

The NQ LWTP Evaporative Lagoons Area (10 acres) is located in the northwest portion of SFAAP. The Sulfuric Acid Concentrator (SAC) Liquid Waste Treatment Plant (LWTP) went into operation in 1984. It consisted of a 45,000-gal tank for distillate and a 17,000-gal tank for other corrosives. It received corrosive distillate from the SAC and some corrosive wastewater from the NQ production processes. Lime neutralizers were added to the acidic wastewater, which then flowed into the two Evaporative Lagoons located south of the LWTP. The wastewater transfer line from the LWTP to the evaporative lagoons had documented releases. The lagoons were constructed in 1984. At the time of the 1987 investigation, the lining of the lagoons appeared damaged. Observations of higher soil moisture and occasional small amounts of water at the base of the berm on the west side of the southern lagoon indicated releases were occurring. The lining was replaced in 1988. It was reported that when the liner was replaced in one of the lagoons, the breaks in the old liner indicated that release to the underlying soil did occur.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Corrosives, Metals, NQ, GN

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	197907	199909
CS	199408	199705
RFI/CMS	199510	199909
IRA	199901	199905
LTM	199910	200701

RC DATE: 199909

In 1996, the lagoons were remediated and dismantled under an agreement with KDHE, constituting partial fulfillment of requirements for lagoon closure. The lagoons have been covered and final grading and seeding was implemented for minimal surface water infiltration and erosion. Confirmation soil samples were collected in FY02 along the LWTP transfer line.

In FY04, the LWTP transfer line was excavated and disposed.

CLEANUP STRATEGY

Ten years of LTM will be conducted.

The LTM end date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-030
PESTICIDE HANDLING AREA

SITE DESCRIPTION

The Pesticide Handling Area (20 acres) is located in the north central portion of SFAAP, with a new building erected a short distance from the old structure that it replaced. The old facility and its surrounding area were reportedly cleaned of pesticide residues. The new facility met AEHA's Criteria for Design of a Pest Control Shop, Pesticide Storage and Mixing Facility. The new Pesticide Storage and Mixing Building operated from 1984 to 2001. The facility contains four sumps, one in each area: the pesticide storage room, the herbicide storage room, the inside mixing room and the outside mixing area. All liquid within the sumps is recycled into formulations, and there is no discharge from the sumps. No spills or releases were recorded for this site. During a Preliminary Review site visit to the Pesticide Handling Area in 1990, an aqua-blue stain was evident at the outside sump and outside the pesticide building. It was identified as a dibromide solution which is an indicator dye to show areas where herbicides/pesticides were sprayed. Any contamination is assumed to have resulted from operations at the former area. It was also noted that stressed vegetation was observed leading from the shop and following a newly constructed road; however, SFAAP personnel indicated that an underground steam line in the area may have impacted the vegetation.

Initial samples were found to be unreliable; therefore, the site must be re-sampled.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Pesticides, Dioxins

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	197907	199009
CS	199610	199805
RFI/CMS	200001	200701

RC DATE: 199909

CLEANUP STRATEGY

Additional RFI activities will be performed to fully define the extent of contamination. Potential remedial activities may include excavation and disposal of ~1,500 cy of pesticide-contaminated materials to an off-site facility. Confirmatory sampling will be performed. No LTM is anticipated.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-031
CONTAMINATED WASTE PROCESSOR

SITE DESCRIPTION

The Contaminated Waste Processor (CWP) and Evaporative Lagoon (8 acres total) are located in the central portion of SFAAP close to its western border. The CWP is an incinerator measuring ~40 x 60 ft. The CWP was designed to incinerate materials contaminated or suspected of being contaminated with explosives, and to decontaminate (flash) explosive-contaminated metal prior to salvage. Because the CWP could only handle materials with residual amounts of explosives, the waste materials to be incinerated were checked to insure they did not contain pockets of explosives. Waste residuals from the CWP were also analyzed for EP Toxicity. If results indicated the waste was hazardous it was treated/disposed off-site at a hazardous waste treatment facility. Otherwise it was landfilled on-site. The CWP operated between 1982 and 1996. Three existing monitoring wells have been in place around the lagoon since 1981. There is a potential for trace concentrations of explosives and propellant compounds such as NG, DNT, and soluble lead to be present in and around the CWP after incineration. While these would not be explosion or fire hazards, they may be soluble and could potentially contaminate groundwater.

Initial RFI results indicated the presence of phthalates in the soil samples. No contamination has been found in the groundwater.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Phthalates, Dioxins, Phenols, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	197907	199009
CS	199408	199805
RFI/CMS	200001	200801

RC DATE: 200801

CLEANUP STRATEGY

Additional RFI activities will be performed to fully define the extent of contamination. A remedial action including excavation, treatment, and disposal of ~800 cy of contaminated soil will be performed. Confirmatory sampling will be conducted. The lagoon will be closed in accordance with KDHE Non-hazardous Industrial Wastewater Lagoon Closure requirements. No LTM is anticipated.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-033
PASTE AREA HALF TANKS AND DITCHES

SITE DESCRIPTION

The Paste Mix Area is located in the central portion of SFAAP just northeast of the NG Area. The Half Tanks in this area received wastewater from wash down of propellant processing equipment and buildings in the Paste Mix Area, and possibly from buildings in the NG Area as well. The Half Tanks were used from 1965 to 1971. The tanks discharged into two unlined settling ponds, then to Pyotts Pond. There were two steel Half Tanks (area totaling 1 acre) located up gradient from each of the settling ponds and are designated Half Tank 33/34 and 33/35. The 33/34 tanks are located southeast of the Paste Mix Area between the Five Corners Settling Ponds and the Paste Sump, and the 33/35 tanks were located northwest of the Paste Area near the NG Settling Ponds. According to a survey, the settling ponds were abandoned and in disrepair. As a result, unidentified quantities of NC and NG were known to be in and around the lagoons. Reportedly, overflowing of the metal flumes and half tanks occurred. There was no secondary containment.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Lead, Nitrocellulose, Nitroglycerine, SVOCs

MEDIA OF CONCERN: Soil, Sediment, Groundwater

Phases	Start	End
RFA	197907	199009
CS	199610	199805
RFI/CMS	199810	200309
IRA	200010	200309
LTM	200310	200508

RC DATE: 200309

The IRA occurred in FY02 and consisted of removal and decontamination of the Half Tanks, removal of ~60 cy of impacted soils from the Half Tanks and ~700 cy of contaminated soil from around the Half Tanks and from the drainage ditches extending from each tanks to its stream discharge point. Confirmation samples were collected to verify that remaining soils met KDHE requirements. The ditches extending from the Half Tanks, up gradient to the source area, will be remediated as part of the SWMU 24 cleanup.

CLEANUP STRATEGY

Four years of LTM will be conducted.

The LTM end date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-035
NITROGLYCERIN AREA SETTLING PONDS

SITE DESCRIPTION

The NG Area Settling Ponds (0.4 acres) were located in the central portion of SFAAP, at the northeastern edge of the NG Area just north of the Paste Mix Area. The 2 ponds (6A, 6B) were used periodically from 1953 to 1971 to receive wastewater resulting from the wash down of equipment and buildings, and from sprinkler trips. The propellant solids and sludge which settled in the ponds were occasionally removed during production and burned at the burning grounds. These ponds were investigated in 1985 and designated as Pond 6A (the southern pond) and Pond 6B (the northern pond). During site visits in both 1985 and 1987, Pond 6A was reported to contain approximately 16 inches of standing water, while Pond 6B was dry. Both ponds contained ~12-18 inches of sediment which appeared to be soil.

RFI results indicated the presence of lead, nitroglycerin, nitrocellulose, and SVOCs in soil. The IRA occurred in FY02 and consisted of removal of 1,300 cy of contaminated soil and re-grading.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, SVOCs, NG, NC

MEDIA OF CONCERN: Soil, Sediment, Groundwater

Phases	Start	End
RFA	197909	199009
CS	199610	199805
RFI/CMS	199810	200309
IRA	200010	200309
LTM	200310	200508

RC DATE: 200309

CLEANUP STRATEGY

Four years of LTM will be conducted. SFAAP may need to replace one groundwater monitoring well.

The LTM end date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-036
N-LINE AREA

SITE DESCRIPTION

The N-Line (301 acres) is located in the south central portion of SFAAP. Production occurred in this area during three periods of operation: 1943 through 1948; 1953 through 1960 and 1965 through 1971. In this area the final machining and inspection of extruded and cut propellant grains occurred. Off-spec materials and trimmings were sent to a grinding mill and then to the north end of N-Line for re-blending. Wastewater originated primarily from floor and equipment washing and flowed through floor drains into unlined ditches which lead to a small tributary of Spoon Creek. There were ~20 eastwardly trending ditches and 2 concrete settling sumps. During several site visits in the late 1980s, the ditches were reportedly well vegetated, except those which received heavy stormwater. Propellant solids containing NG and lead salts settled in these ditches. The propellant formulations processed in this area were single or double base and were generally reactive. The N-Line was known as the solventless propellant area along with the F-Line.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Lead, POL, Propellants

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	197909	199009
CS	199408	199805
RFI/CMS	199810	200701

RC DATE: 200701

The RFI report states that risks due to the ingestion of groundwater by residential receptors exist. The RFI recommended CMS and removal action. Propellant and lead contaminated soil was identified during the RFI. Lead and nitroglycerin were found in groundwater.

In 2001, this site was increased in size due to 1998 Environmental Baseline Survey. This additional area will need to be investigated. The two Tunnel Dryers (SAAP-043) within this SWMU boundary will be investigated and cleaned up under this site.

CLEANUP STRATEGY

Additional RFI activities will be performed to determine extent of contamination. Remedial activities will include excavation and disposal off-site of ~16,000 cy of contaminated soil. Waste propellant will be removed from the two sumps and confirmatory sampling will be conducted. Contaminated soil includes ~1,000 cy from a leaking T containing POL products.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-037
SANDBLAST AREAS

SITE DESCRIPTION

Sandblasting occurred in several locations (totaling ~3 acres) during various periods of operation. From ~1964 to 1969, an area east of the former Maintenance Office Building 245-3 was used for sandblasting. Between 1980 and 1984, an area west of the Paint and Sign Shop Building 504 was ed. Additionally, documents indicate an area south of the Equipment Storage Building 566-1 was ed. It is believed this area was used prior to 1980, but records of this e were not available. Sandblasting was used to prepare equipment such as motors, pumps, pipes, trailers and heavy equipment for painting and preservation. The bulk of the sand recovered was disposed in the sanitary landfill; however, residual sand was left on the ground in these areas. In addition, sand was not contained during the sandblasting operations and was therefore able to migrate through the air. The primary concerns at these sites are paint wastes and their constituents, especially metals such as lead, chromium, and cadmium.

Initial samples were found to be unreliable; therefore, the site must be re-sampled.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	197909	199009
CS	199509	199805
RFI/CMS	200001	200701

RC DATE: 200701

CLEANUP STRATEGY

Additional sampling will be completed. The project will proceed with excavation, treatment and disposal off-site of 3,000 cy of contaminated soil.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-038
OIL WATER SEPARATOR

SITE DESCRIPTION

The Oil Water Separator (0.5 acres) was located in the north central portion of SFAAP. It began operation in 1971 to service the auto maintenance shop located in Building 542. A majority of the flow to the separator was derived from the floor drain in the car wash bay. Additional wastewater sources include rainwater and condensate from steam radiators used to heat the building. Although no oil or grease was reportedly dumped into the drains leading to the separator, a small quantity of sludge collected in the tank. Sludge was removed from the tank in 1987 and tested for TCLP prior to transfer to the Sanitary Landfill (SWMU 18). This was the first recorded removal of sludge. During a site visit in 1990, the integrity of the tank was questioned because there was influent to the separator, but the tank did not appear to be filling. Oil stains and bare ground were noted under and downgradient of the half tank. It was also indicated that there was visual evidence of potential release to the surface water and soil.

Initial samples were found to be unreliable; therefore, the site was re-sampled in January 2004. The RFI report addendum was completed in September 2005.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Pesticides, Metals, VOCs, TPH, SVOCs

MEDIA OF CONCERN: Soil, Surface water

Phases	Start	End
RFA	197909	199009
CS	199509	199805
RFI/CMS	200001	200409
DES	200508	200801
CMI(C)	200508	200801

RC DATE: 200801

CLEANUP STRATEGY

NFA is needed at this site. Surface water is handled under SAAP-066.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-039
SOUTH ACID AREA DITCHES

SITE DESCRIPTION

The South Acid Area Ditches (11 acres) are located in the east central portion of SFAAP. The primary drainage ditch originate near the Calcium Cyanamide Disposal Area (SWMU 40). A second ditch originates at the Sulfuric Acid Regenerator. A third influent ditch from the NG and Paste Mix Areas joins the ditch from SWMU 40. All three ditches discharge into Pyotts Pond. During a site visit in 1990, the surface water observed in the east ditch was tinted orange; a white precipitate was observed along both ditches. Reportedly the orange color was caused by the neutralization of acidic ferrous sulfate and sulfuric acid with hydrated lime. The sediment was reported to contain ferrous sulfate and calcium sulfate. Wastes handled at this site include sulfuric and nitric acids, and wastes from the LWTP which may have contained NQ.

Initial samples were found to be unreliable; therefore, the site must be re-sampled. The re-sampling effort was completed in FY04. The RFI Addendum Report was completed in FY05.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, Nitrates, Sulfates

MEDIA OF CONCERN: Surface Water, Sediment, Groundwater

Phase	Start	End
RFA	197909	199009
CS	199509	199805
RFI/CMS	199602	200601
DES	200602	200701
CMI(C)	200602	200701

RC DATE: 200701

CLEANUP STRATEGY

Limited soil removal is required.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-040
CALCIUM CYANAMIDE DISPOSAL AREA

SITE DESCRIPTION

The Calcium Cyanamide Disposal Area (2 acres) is located in the east central portion of SFAAP. Waste from the operation of the NQ pilot plant was disposed of in a natural ravine at this site. Calcium cyanamide was generated for wet GN production and delivered to the NQ pilot plant from the main NQ Area. Whenever the carbide content was too high for acceptance at the pilot plant, the calcium cyanamide was taken to the Calcium Cyanamide Disposal Area. The calcium cyanamide sludge was disposed of in this area for only a 3-month period in 1982. The waste material, consisting of calcium cyanamide and fluorspar, was later covered to form a landfill, and enclosed by a barbed-wire fence. The fenced-in area comprises approximately one acre; however, less than half of the area was actually used for disposal of the calcium cyanamide waste. The 200' x 60' disposal area is located in the northeastern portion of the landfill, an area which is now a grassy plateau which slopes downward ~15 ft. An evaporation pond is located just southwest of the landfill. White and black stains were observed along the edges of the pond during site visits in 1989 and 1990.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, Sulfate

MEDIA OF CONCERN: Soil, Groundwater, Sediment, Surface Water

Phases	Start	End
RFA	197909	199009
CS	199408	199805
RFI/CMS	200001	200701

RC DATE: 200701

There is some concern that the surface water runoff from this site drains to Pyotts Pond via the South Acid Area Drainage Ditch discussed in the previous section (SWMU 39).

Initial samples were found to be unreliable; therefore, the site must be re-sampled for SVOCs, VOCs, metals, sulfates and cyanide.

CLEANUP STRATEGY

Additional RFI activities will be conducted to determine the extent of contamination. Approximately 5,000 cy of waste will be removed from the disposal area.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-041
CALCIUM CARBONATE CAKE LANDFILL

SITE DESCRIPTION

The Calcium Carbonate Cake (CCC) Landfill (2 acres) is located in the west central portion of SFAAP. It measures ~350 x 315 ft and was operated from May 1986 to June 1988. Between May 1988 and December 1991, the CCC was provided to farmers rather than landfilled. This practice was discontinued in December 1991 due to market saturation. Initially, containerized CCC was disposed of at this site, but later uncontainerized CCC was deposited. The source of CCC was NQ production. CCC is a byproduct of GN manufacturing. GN is an intermediate product of NQ. A leachate collection system was installed in the CCC Landfill at the time of construction. The leachate in the collection system tank is monitored. During a site visit in 1990, it was noted that the landfill cap was cracked, vegetative cover was sparse, and erosional features had developed.

In 1998, the landfill cap was repaired and graded to minimize infiltration and erosion. Also, new ground cover was established. All work was inspected and accepted by KDHE representatives.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN:
Nitrates, SVOCs, Sulfates

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
RFA	197909	199009
CS	199610	199805
RFI/CMS	199704	200009
IRA	199901	199905
LTM	200107	200508

RC DATE: 200009

Per KDHE's requirement, additional wells were installed in FY02.

CLEANUP STRATEGY

Thirty years of LTM will be conducted.

The LTM end date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-043
TUNNEL DRYERS (CCC STORAGE)

SITE DESCRIPTION

There are a total of six Tunnel Dryers (8 acres) that were used for temporary storage of Calcium Carbonate Cake (CCC). Four of the dryers are located in the west central portion of SFAAP. The 2 remaining dryers are located in the southern portion of SFAAP and will be handled under SAAP-036. The dryers began operation in 1986. Each dryer measures ~125 x 18 ft, with 6 ft high walls, and each has a leachate collection system. CCC was a byproduct of the GN step of the NQ production process. The CCC was loaded into dump trucks via conveyor in the NQ area and transported to the tunnel dryers. The CCC was dumped into the dryer and arranged using a front-end loader. The product was ultimately offloaded from the tunnel dryers by vendors. The tunnel dryers are not enclosed. During a site visit in 1990, it was observed that CCC had been tracked beyond the walls of the tunnel dryers by the trucks loading and unloading at the site.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Nitrates, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	197909	199009
CS	199509	199805
RFI/CMS	199604	200801

RC DATE: 200801

Initial groundwater samples were found to be unreliable; therefore, the site must be re-sampled.

CLEANUP STRATEGY

Additional RFI activities will include sampling of soil and groundwater. Five new wells will be installed and monitored for five years. No soil cleanup is anticipated.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-045
BUILDING 9040 & CA. CYANAMIDE CONVEYOR

SITE DESCRIPTION

Building 9040 (2 acres) is the wet GN building. It is located in the central part of the NQ Area in the northwestern portion of SFAAP. The NQ Area began limited production in 1981. Calcium cyanamide was produced in Building 9004 and transferred via belt conveyor to Building 9040 for e in the GN process. The belt conveyor, which led to storage bins located on the east side of Building 9040, is enclosed in an elevated, sheet metal galleyway. There are four 175-ton storage bins. Calcium cyanamide was released at the bins because of problems with the screw conveyors used to transport material from Building 9004. A concrete pad was constructed in a small portion of the area under the storage bins; however, the pad was too small to effectively contain the spillage, especially in windy conditions. Bare spots were observed in areas near the storage bins.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN:
Metals, Nitrates

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
RFA	197909	199009
CS	199610	199805
RFI/CMS	200001	200510
LTM	200510	200801

RC DATE: 200510

A drainage divide is located in the NQ Area running east of Building 9040. It separates the Captain Creek drainage area from the area drained by unnamed creeks flowing northward toward the Kansas River. Initial samples (1995) were found to be unreliable; therefore, the site was re-sampled in 2003. The results indicated that the nitrate plume is not leaving SFAAP. Additional RFI activities included a hydrologic assessment and collection of geotechnical and geochemical data to facilitate a technology evaluation of potential remedies to address nitrate-contaminated groundwater.

A RFI Addendum, which included the Risk Assessment, was completed in FY05. This report recommended LTM only. Removal of the sumps at Building 9040 will be handled under SAAP-047. These sumps are the source for groundwater contamination at SAAP-045.

CLEANUP STRATEGY

Ten years of LTM will be conducted after source removal.

The LTM end date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-046
DECONTAMINATION OVEN

SITE DESCRIPTION

The Decontamination Oven (2-acre site) is located in the northeast portion of SFAAP. The oven was constructed in 1970 and was used to decontaminate oversized equipment/materials contaminated with trace explosives. There were no secondary containment features at this site (PRC, 1990). Only trace explosives were treated in this area. It may have been possible for volatile contaminants to be released via the exhaust fan during heating. Lead may have been released from the equipment and vehicles decontaminated at this site.

Initial samples were found to be unreliable; therefore the site must be re-sampled.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Lead

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	197909	199201
CS	199509	199805
RFI/CMS	200001	200701

RC DATE: 200701

CLEANUP STRATEGY

Additional soil samples will be taken. It is expected that ~400 cy of contaminated soil will be excavated and disposed off-site.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-047
NITROGUANIDINE AREA (25) SUMPS

SITE DESCRIPTION

The NQ manufacturing facilities are located in the northwest corner of SFAAP. Construction of these facilities began in the late 1970s with limited production during 1981. In August 1984, the plant began bulk production of NQ, and ceased bulk production in August 1992. There are 25 sumps (0.7 acres) in the NQ Area. Each of the production buildings had dedicated sumps outside the buildings which received wastewater generated by operations in the NQ Area. The wastewater resulted from equipment washdowns, spills, runoff, and non-contact operations, such as cooling water and steam condensate. The wastewater may have been acidic and may potentially have contained contaminants such as NQ and GN, as well as raw process materials or intermediates of the NQ process.

RFI results indicated elevated levels of nitrates in groundwater and the soil around the sumps of Bldg 9040. Elevated levels of sodium were also detected.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS: Metals, Ordnance Compounds

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	197909	199009
CS	199408	199805
RFI/CMS	199810	200701

RC DATE: 200701

CLEANUP STRATEGY

A RFI and focused CMS will be completed to confirm contaminant characteristics and evaluate potential remediation options. Remediate all of the 25 sumps (14,800 cy removal and landfarm). 2,500 cy of concrete debris will be disposed of as solid waste. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-048
NITROGUANIDINE SUPPORT AREA

SITE DESCRIPTION

The NQ Support Area (6 acres) is located in the north central portion of SFAAP in Buildings 2000 and 2012. The equipment included dryer bays, aboveground storage tanks, and half tanks. This was the location of the pilot-scale production plant known as the NQ Support Equipment (NSE) facility. The NSE facility was constructed during 1977-1980 and was operated periodically as a partial prove-out from May 1979 to June 1984. In August 1984, the main NQ plant began production. The majority of the pilot plant was demolished sometime following shut down; however, Buildings 2000 and 2012 are still present. This site was the location of the former nitrocellulose production facility, used from 1943-1971.

RFI results indicate the presence of elevated levels of nitrates, NQ, GN and sulfates in soil and groundwater.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS: Nitrates, Sulfates, NQ, GN

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
RFA	197909	199009
CS	199509	199805
RFI/CMS	199609	200009
LTM	200101	200508

RC DATE: 200009

CLEANUP STRATEGY

The lateral extent of the groundwater plume has not been delineated. Seven years of LTM will be conducted.

The LTM end date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-050
DISPOSAL SITE EAST OF SWMU 1

SITE DESCRIPTION

SAAP-50 consists of two areas. The first area (50 north) is an abandoned dump site (6.5 acres) that was discovered just inside the eastern boundary of SFAAP near Kill Creek. The second area (50 south) consists of another abandoned dump site (3.2 acres) near the other area. The debris scattered about both sites included shingles, drums and metal slag. An interim removal was accomplished in FY97. Additional debris was removed and rip-rap was placed over select areas to stabilize the bank in FY00.

In FY04, limited debris removal and cover stabilization was conducted on an exposed disposal area in the north disposal site.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Solvents

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	197909	199009
RFI/CMS	199910	200105
IRA	200010	200105
LTM	200106	200508

RC DATE: 200105

CLEANUP STRATEGY

Thirty years of cover maintenance will continue.

The LTM end date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-051
NEW RECLAMATION YARD

SITE DESCRIPTION

The New Reclamation Yard is located on ~8 acres in the north central portion of SFAAP and includes the Battery Handling Area. The New Reclamation Yard was used to stage scrap materials and excess equipment. Scrap was decontaminated to 5X standards at SAAP-021 prior to sale or reclamation. In the battery handling area, battery parts were observed on the ground. Wastes typically associated with batteries include acids and metals, particularly mercury, lead and/or cadmium, depending upon the type of battery.

Initial samples collected in the battery handling area were found to be unreliable; therefore, the site must be re-sampled. As a result of the EBS, this site was expanded from just the Battery Handling Area to include the entire Reclamation Yard.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Lead

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	197909	199009
CS	199408	199805
RFI/CMS	200001	200801

RC DATE: 200801

CLEANUP STRATEGY

The site will be investigated to delineate areas requiring remediation. A CMS will be completed. Approximately 3,200 cy of metals-contaminated soil will be excavated, treated and disposed. Confirmatory sampling will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-053
BURN AND DEBRIS AREA NORTH OF STP

SITE DESCRIPTION

The Burn and Debris Area North of STP (Sewage Treatment Plant) is located on ~5 acre in the northeast portion of SFAAP. A sequence of aerial photographs taken of SFAAP beginning in 1941 and ending in 1991 shows the old Burn and Debris Area. An inspection was done on September 18, 1997. A wood pile is still there, but the road is covered over with vegetation. The debris begins around the fence line near the main road by the sewage treatment plant. It is comprised of construction debris including heavy duty concrete rubble, rusted out 55-gallon steel drums, glass rubble, broken insulators, pipe debris, wood scraps, telephone poles, wire fencing, concrete pipe pieces, iron scraps and asbestos materials. The debris covers ~1 acre and extends from the fence line, following the creek until reaching the open area where a quarry existed. Debris is on both sides of the creek and in the creek bed itself.

The site was sampled in FY05.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Metals, PAHs

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

Phases	Start	End
RFA	199601	199604
CS	199704	199811
RFI/CMS	200310	200701

RC DATE: 200701

CLEANUP STRATEGY

Complete the RFI report in FY06. A CMS will be conducted. Soil/debris removal and treatment (~500 cy) will be needed. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-054
FLUORESCENT TUBE WELLS

SITE DESCRIPTION

SAAP-054 is three homestead wells used for disposal of Fluorescent tubes (totaling less than 1 acre). One well is located in the northwestern portion of SFAAP, east of the NQ production area. A second well is located in the northeastern portion of SFAAP, southeast of building 211. The third well is located in the east central portion of SFAAP, south of the Ballistics Area. The sites consisted of hand dug water wells that were part of old pre-SFAAP homesteads. One of the wells was five feet in diameter, about twelve feet deep and lined with concrete. This well was used as a fluorescent tube disposal pit. It is uncertain when this occurred, but is suspected to have taken place prior to 1976. The well was uncovered and full of water. Fluorescent tubes contain mercury.

An additional two wells were identified as being used for fluorescent tube disposal. The broken fluorescent tubes and contaminated soil were removed from all three wells.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN:
Mercury

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
RFA	199601	199604
CS	199704	199811
RFI/CMS	200310	200701

RC DATE: 200701

This site includes the well identified in the EBS dated October 1998, as being located in Parcel 1-7(4) HR. All three wells were closed in accordance with KDHE well abandonment requirements in 1994.

CLEANUP STRATEGY

Install monitoring wells and sample to verify that the contents of the three wells did not have an adverse impact to groundwater.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-056
WELL SOUTH OF FACILITY 211

SITE DESCRIPTION

The Monitoring Well South of Facility 211 is located in the northeast portion of SFAAP. SWMU 56 is the area of nitrate/nitrite contamination in the area south of Facility 211. Contamination has been documented in the monitoring well in this area. This SWMU is located in Parcel 1-25(7)HR(P) shown in the EBS. Groundwater and soils were sampled by ACHPPM in March 2003. None of the soil results exceeded EPA Region IX PRGs. No contamination was detected in the groundwater.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Nitrate, Nitrite

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	200301	200303
LTM	200510	200601

RC Date: 200303

CLEANUP STRATEGY

USACHPPM's March 2003 RRSE Report recommended no further action at this site. However, KDHE wrote letter recommending the Army conduct additional sampling, specifically two years of semi-annual groundwater monitoring for nitrates. SI phase will be re-opened to take additional samples.

The LTM end date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-057
CHEMICAL PREPARATION HOE

SITE DESCRIPTION

The Chemical Preparation Hoe (Facility 507-2) is located in the north central portion of SFAAP. Chemicals may have been spilled on the ground outside of this building. This SWMU is located in Parcel 1-27(7)HR(P) as shown in the EBS.

Soil samples were collected by ACHPPM in March 2003. None of the samples exceeded background levels.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: SVOC

MEDIA OF CONCERN: Soil

PHASES	Start	End
RFA	199808	200303
CS	200303	200309

RC DATE: 200309

CLEANUP STRATEGY

USACHPPM's March 2003 RRSE Report recommended no further action at this site. However, KDHE wrote a letter recommending the Army conduct additional soil and groundwater sampling.

The SI phase will be re-opened to take additional samples.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-058
COMBINED SHOPS AREA

SITE DESCRIPTION

The Combined Shops Area (24 acres) is located in the north central portion of the plant, and was used for maintenance activities and repairs. There are a total of 30 facilities in the area. The facilities include: three offices, the fuel oil unloading STATUSion, storage and distribution center, 12 storehouses, and nine shops. There was a Tram Repair Shop that was converted into a Heating Plant (Formerly Facility 522, Currently Facility 154-5). Several facilities in the Shop Area are visibly stained. This site is located in Parcel 1-28(7)HR(P) shown in the EBS.

Groundwater and soils were sampled by ACHPPM in March 2003. PCE results in the groundwater exceeded the EPA Region IX PRGs. PCE, PAHs, lead, arsenic and manganese results from soil exceeded the EPA Region IX PRGs.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS: PAHs, Metals, VOCs

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200508

RC DATE: 200508

CLEANUP STRATEGY

Perform RFI to define areas requiring excavation of contaminated soil. CMS will be completed. Excavate, treat, and dispose of 400 cy of contaminated soil. Three years of LTM will be conducted after soil removal.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-059
LAUNDRY FACILITY

SITE DESCRIPTION

The Laundry Facility (Facility 4562) is located in the north central portion of the plant. This facility was used to launder worker clothing to remove process wastes and propellant contamination. The Laundry Shop was a single story facility with a concrete floor containing several sumps and drains. There were two fuel oil tanks located outside of the facility. This SWMU is located in Parcel 1-30(7)HR(P) shown in the EBS.

Soil sampling was conducted by ACHPPM in March 2003. All results of the soil sampling were below EPA Region IX PRGs.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: VOCs

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	200303	200309

RC DATE: 200309

CLEANUP STRATEGY

USACHPPM's March 2003 RRSE Report recommended no further action at this site. However, KDHE wrote letter recommending the Army conduct additional soil and groundwater sampling. SI phase will be re-opened to take additional samples.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-060
OLD PHOTOGRAPHIC LABORATORY

SITE DESCRIPTION

The Old Photographic Laboratory (3 acre site) is in the southeast corner of the Old Administration Building No. 2 (Facility 214), which is located in the northeast portion of SFAAP. Wastes from the laboratory were commonly dumped into the sink, which discharged directly to soils behind the facility. Cleanup inside the building was handled outside of ER,A. This site is located in Parcel 1-31(7)HR(P).

Soil was sampled by ACHPPM in March 2003. SVOCs and arsenic results exceeded the EPA Region IX PRGs.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: SVOCs, Arsenic

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200601

RC DATE: 200601

CLEANUP STRATEGY

Perform RFI to delineate areas requiring excavation of contaminated soil. CMS will be completed. Excavate, treat, and dispose of 75 cy of contaminated soil from outside of the building.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-063
WATER TOWERS

SITE DESCRIPTION

The Water Towers (7 acres total) are located throughout the plant. There are 8 water towers consisting of the north towers #'s 1, 2, 3 and 4 and the south towers #'s 5, 6, 7 and 8. The surface soil surrounding the Water Towers are contaminated with lead, originating from lead-based paint. The towers were painted several times before 1978, and sandblasted each time before they were repainted. Documentation was available to confirm that no measures were taken to contain the removed paint during or after sandblasting operations.

Soil samples were collected by ACHPPM in March 2003. Arsenic and lead results exceeded EPA Region IX PRGs.

Two other water towers located in the NC Production Area will be remediated under SAAP-116 (AOC 16).

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200701

RC DATE: 200701

CLEANUP STRATEGY

Perform RFI to define areas requiring excavation of contaminated soil. Excavate, treat, and dispose of ~5,000 cy of contaminated soil.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-064
PAPER BURNING GROUND

SITE DESCRIPTION

The Paper Burning Ground (3 acres) is located in the east central portion of the plant. A trench was observed on aerial photographs encompassing 200 X 30 feet. Contaminants may have extended to a depth of 5 feet below ground surface. This SWMU is located in Parcel 1-38(7) HR (P) shown in the EBS.

Soil samples were collected by ACHPPM in March 2003. Arsenic results in soil exceeded the EPA Region IX PRGs. The soil results were used to estimate the potential levels of compounds in groundwater. Arsenic, chromium and lead are estimated for groundwater as exceeding the EPA Region IX PRGs.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200701

RC DATE: 200701

CLEANUP STRATEGY

Perform RFI to define areas requiring excavation of contaminated soil. One well will be installed as part of the RFI. Excavate and dispose of ~1,600 cy of contaminated soil. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-065
TANK FARM

SITE DESCRIPTION

The Tank Farm site (~22 acres) is located in the north central portion of the plant, Parcel 8-2(7) HR (P) as shown in the EBS. The Tank Farm received and processed recycled solvents which included alcohol, ether, and acetone. Numerous releases have been documented from within the Tank Farm. Although the tanks were removed, the foundations and saddles remain. This site has not been used since the 1960s.

Groundwater and soil samples were collected by ACHPPM in March 2003. Arsenic and lead results for groundwater exceeded the EPA Region IX PRGs. Arsenic and benzo(a)pyrene results for soil exceeded the EPA Region IX PRGs.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: PAH, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200701

RC DATE: 200701

CLEANUP STRATEGY

Perform RFI to define areas requiring excavation of contaminated soil. Excavate and dispose of 4,100 cy of contaminated soil. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-066
INSTALLATION –WIDE STREAM STUDY

SITE DESCRIPTION

In Feb 2000, EPA ordered SFAAP to conduct stream monitoring. This site includes the following creeks: Captain (10,861 linear feet), Hanson (6,900 linear feet), Kill (9,097 linear feet), and Spoon (18,506 linear feet). Initial stream surface water and sediment sampling was conducted under SAAP-014, except for Hanson Creek, which was conducted under SAAP-002.

Phase I of the stream sampling was completed in 2003. Phase I included sediment and surface sampling. Sediment sample contaminants above KDHE RSK residential soil to groundwater pathway values were arsenic, nitrocellulose and TPH-DRO. Surface water sample contaminants above KDHE RSK residential groundwater pathway values were manganese, dieldrin, di-n-octyl phthalate and lead.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Metals, TPH

MEDIA OF CONCERN: Surface Water, Sediment

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200508

RC DATE: 200508

Phase II is completed, which included surface water sampling only. Phase III included surface water sampling to characterize changes over time.

CLEANUP STRATEGY

The RFI report will be completed in FY06. Sediment removal may be needed. KDHE recommends future surface water quality and sediment monitoring.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-067
SOUTH ACID AREA

SITE DESCRIPTION

The South Acid Area (26 acres) is located in the east central portion of SFAAP, and consists of tanks, troughs, pipes and other conveyances. The plant manufactured and regenerated nitric and sulfuric acids. This area was used from 1943 to 1998. This site includes the areas identified as AOC 7-Former Truck Maintenance Shop in South Acid Area, AOC 8-Former Fuel Oil Storage Tank in South Acid Area, and AOC 9-Oil and Paint Hoe in South Acid Area. The ditches from the South Acid Area to Pyotts Pond are included in SAAP-039.

Groundwater and soil samples were collected by ACHPPM in March 2003. None of the groundwater results exceeded EPA Region IX residential PRGs. Benzo(a)pyrene, lead and arsenic results in soil exceeded the EPA Region IX PRGs.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Nitrates, Sulfates, Metals, SVOCs, PAHs, TPH

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200801

RC DATE: 200801

CLEANUP STRATEGY

Perform RFI to define areas requiring excavation of contaminated soil. Excavate, treat, and dispose of ~15,600 cy of contaminated soil. Five years of LTM will be conducted.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-101
MONITORING WELL WEST OF OLD ADMIN B

SITE DESCRIPTION

The Monitoring Well West (32 acre site) of the Old Administration area is located in the northeast portion of SFAAP. AOC 1 is the area of nitrate/nitrite groundwater contamination west of the Old Administration Area. Contamination has been documented in a monitoring well in this area. This AOC is located in Parcel 1-26(7) HR (P) shown in the EBS.

In 2003 the Army sampled for nitrates in groundwater and found detections at the action level (MCL). Currently, the source of the nitrates is unknown.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN:
Nitrates

MEDIA OF CONCERN:
Groundwater

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200304	200409
LTM	200410	200601

RC DATE: 200410

CLEANUP STRATEGY

Three years of LTM will be conducted.

The LTM end date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-104
DISPOSAL AREA SOUTHEAST OF STP

SITE DESCRIPTION

The Disposal Area (0.3 acres) southeast of the STP (Sewage Treatment Plant) is located in the northeast portion of SFAAP. This site is the area southwest of the STP where several trenches were noted on historical aerial photographs. This area may have been the Mess Hall Landfill. This site is located in Parcel 1-37(7)HR(P) shown in the EBS.

Sampling by ACHPPM in March 2003 identified arsenic in the subsurface soil and surface soil as exceeding EPA Region IX PRG screening levels. The detections were below background levels. USACHPPM's March 2003 RRSE Report recommends no further action at this site. However, KDHE wrote a letter recommending the Army conduct additional soil and groundwater sampling.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303

RC DATE: 200303

CLEANUP STRATEGY

Additional soil and groundwater samples will be taken. Backhoe trenching will be conducted for two days.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-105
CANNON RANGE TUNNELS (FACILITY 303)

SITE DESCRIPTION

The Cannon Range Tunnels are located in the eastern portion of SFAAP. The Army fired 2.75 inch inert rockets into these tunnels at this site. During the 1998 EBS site investigation of the Cannon Range Tunnels (Facility 303), it was noted that 32, 55-gallon drums were stored within the southern tunnel. It was later determined that these drums contained investigation-derived waste. Iron piping material, commonly used for explosive reactivity testing, was observed in the drums. The greatest potential for surface soil contamination was anticipated to be along the firing line leading from the platforms to the tunnels and within the tunnels. During a 1988 RI field program conducted at the Cannon Range, six surface soil samples were collected downrange of the firing line and a composite sample was collected from each tunnel. Samples were analyzed for priority pollutant metals, explosives, and TCLP. Analytical results indicate that explosives and metals were present in the soil at low levels. This site is located in Parcel 2-11(7)HR(P) shown in the EBS.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Metals, Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303

RC DATE: 200303

All drums located in the Cannon Range Tunnels were disposed off-site. During USACHPPM's March 2003 RRSE sampling, arsenic was the only compound exceeding the EPA Region IX PRG value, but below background level.

USACHPPM's March 2003 RRSE Report recommends no further action at this site. However, KDHE wrote letter recommending the Army conduct additional soil samples.

CLEANUP STRATEGY

Additional soil samples will be taken.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-110
STORAGE MAGAZINES NOT IN SWMU 15, 16

SITE DESCRIPTION

The 80 storage magazines (~541 acres) not included in SAAPs (SWM) 15 and 16, are on the southern end of the plant. These magazines were used to store processed powder and propellants. This AOC is located in Parcel 4-1(1) shown in the EBS.

During USACHPPM's 2003 RRSE sampling event, arsenic was the only compound to exceed its respective Region IX PRG value, but was below background level. Pesticide residues (assumed to be from proper application) below the floors exceed residential risk levels.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Metals, Pesticides, Explosives, SVOCs

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200701

RC DATE: 200701

CLEANUP STRATEGY

Additional samples will be taken to better delineate the contamination levels.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-111
FORCED AIR DRYERS

SITE DESCRIPTION

SAAP-111 consists of over 50 buildings designated as Forced Air Dryers, Rest Hoes, Screen Hoes, and Can Pack Hoes in Parcel 5-10(7)HR shown in the EBS. Located in the west section of the plant, this area processed solvent propellants.

This site was sampled by ACHPPM in 2003 for SVOCs, nitrates, and heavy metals. Arsenic was the only compound to exceed the EPA Region IX PRG value and local background.

USACHPPM's March 2003 RRSE Report recommends no further action for this site. However, KDHE wrote a letter recommending the Army conduct additional soil and groundwater samples.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Metals, Explosives, SVOCs

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303

RC DATE: 200303

CLEANUP STRATEGY

Additional soil samples will be taken.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-112
PASTE AIR DRY FACILITIES

SITE DESCRIPTION

SAAP-112 consists of the former Paste Air Dry facilities in Parcel 5-13(7)HR(P) shown in the EBS. Located in the center of the facility, this site consists of 16 buildings (36 acres) used as paste drying facilities that were part of the F-Line and N–Line operations. All of the buildings have been burnt with only foundations remaining.

The RRSE sampling conducted by ACHPPM in March 2003 analyzed for metals, SVOCs, NC, and NG. Arsenic and lead exceeded the EPA Region IX PRG value.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: Metals, Explosives, SVOCs, NC, NG

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200701

RC DATE: 200701

CLEANUP STRATEGY

Additional samples will be taken to better delineate the contamination.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-114
ROBERT'S LAKE

SITE DESCRIPTION

Robert's Lake (12 acres) is located in the west central portion of SFAAP, south of the Old Sanitary Landfill and west (downgradient) of G-Line. Robert's Lake current and future e is for recreation. This site is located in Parcel 6-7(7)HR(P) shown in the EBS.

This site was sampled by AEHA in 1994 for SVOCs, metals and explosives. Arsenic and lead were the only compounds in surface water to exceed EPA Region IX PRGs. Arsenic in sediment exceeded EPA Region IX PRGs. ACHPPM performed a Relative Risk Site Evaluation using the 1994 data and recommended further action on this site.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Surface Water and Sediment

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200508

RC DATE: 200508

CLEANUP STRATEGY

Perform an RFI to delineate sediments requiring excavation. CMS will be completed. Excavate and dispose of ~17,000 cy of contaminated sediment. Restore pond by fixing the dam once excavation is complete.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-115
HAZARDO ANALYSIS TESTING LAB

SITE DESCRIPTION

The Hazardous Analysis Testing Laboratory (1 acre) is located in the north central portion of the plant. This area consists of an indoor firing range which used sand to catch expended small-caliber test projectiles. Some of the sand was disposed in piles just outside a door on the south side of the building and a door on the north side of the building. Both sand piles measure 60 X 30 feet. This AOC is located in Parcel 7-2(5)HR shown in the EBS.

During 2003, the site was sampled by ACHPPM. Lead and arsenic in soil were the only contaminants to exceed Region IX PRGs.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Soil

PHASES	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200701

RC DATE: 200701

CLEANUP STRATEGY

Complete Interim Removal Action of 77 cy of soil. Excavate, treat, and dispose of soil off-site. Perform confirmation sampling and restoration of area.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-116
NITROCELLULOSE PRODUCTION LINES

SITE DESCRIPTION

The former NC production lines (107 acres) were located in the north central portion of the plant. Each production line is approximately 10 acres in size and contains 10 or more buildings. The majority of the buildings have been burnt and all that remains are the concrete foundations and sewers. The NC production lines produced NC during the periods of 1943-1960, and 1965-1971. Nitrocellulose and other hazardous constituents were released to the soil and potentially the groundwater in the proximity of the production facilities. This site is located in Parcel 8-2(7)HR(P) shown in the EBS.

During 2003, the site was sampled by ACHPPM. Arsenic, lead and SVOCs were detected in soil above the EPA Region IX PRGs.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS: Lead, NC, NG, SVOC, VOCs, Sulfates, Nitrates

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200801

RC DATE: 200801

CLEANUP STRATEGY

Complete RFI to verify quantities outside of foundations. Perform remedial design for soil removal and disposal. Perform remedial action to excavate and dispose of ~13,880 cy of soil off-site. Sample and restore excavated area.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-117
NITROGUANIDINE PRODUCTION BUILDINGS

SITE DESCRIPTION

SAAP-117 includes all buildings which have been identified as being potentially contaminated with explosives located in Parcel 9-5(6)HR shown in the EBS. The NQ production facilities are located in the northwest portion of SAAP. Based on a review of the documents, visual inspections and interviews, there is evidence that NQ and GN contamination was observed leaching out of walls and floors during the 1998 EBS visual inspection.

During 2003, the site was sampled by ACHPPM for NQ and nitrates/nitrites with no detections above EPA Region IX PRG values.

USACHPPM's March 2003 RRSE Report recommends no further action at this site. Once the buildings are demolished, if contamination is found it will be addressed under SAAP-123. However, KDHE wrote a letter recommending the Army conduct additional soil samples.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: NQ, GN, Nitrates, Sulfates, SVOCs, VOCs

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303

RC DATE: 200303

CLEANUP STRATEGY

Additional soil samples will be taken.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-118
TRENCH DISPOSAL AREA A3

SITE DESCRIPTION

SAAP-118 is the Trench Disposal Area (34 acres) identified as A3 in 1948 aerial photographs from disturbed ground west of SAAP-001, the Classification Yard located in the northeast portion of SFAAP.

Characterization sampling was completed in 2003 as follow-up work to SAAP-001 characterization and RFI completion. Lead was detected above regulatory levels.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: Lead

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200507	200508

RC DATE: 200508

CLEANUP STRATEGY

Perform an RFI to delineate soil requiring excavation. Excavate, treat, and dispose of ~40 cy of contaminated soil. Restore area once excavation is complete.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-119
TRENCH DISPOSAL AREA A4

SITE DESCRIPTION

SAAP-119 (0.6 acres) is the Disposal Site identified as A4 in 1948 aerial photographs from disturbed ground on the southwest end of SAAP--001, the Classification Yard located in the northeast portion of SFAAP.

Characterization sampling was completed in 2003 as follow-up work to SAAP-001 characterization and RFI completion. There were no contaminants detected above regulatory limits. Therefore, the Army recommended no further action at this site. However, KDHE wrote letter recommending the Army conduct additional soil and groundwater samples, and conduct trenching with backhoe to verify that no disposal of waste occurred in historic trenches.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: None

MEDIA OF CONCERN: Soil

PHASES	Start	End
RFA	199808	200303
CS	199808	200508

RC DATE: 200508

CLEANUP STRATEGY

Backhoe trenching will be conducted for one day. Soil samples will be taken.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-120
TRENCH DISPOSAL AREA A5

SITE DESCRIPTION

SAAP-120 (0.5 acres) is the Disposal site identified as A5 in 1948 aerial photographs from disturbed ground east of SAAP-001, the Classification Yard located in the northeast portion of SFAAP.

Characterization sampling was completed in 2003 as follow-up work to SAAP-001 characterization and RFI completion. There were no contaminants detected above regulatory limits. Therefore, the Army recommended no further action at this site. However, KDHE wrote letter recommending the Army conduct additional soil and groundwater samples, and conduct trenching with backhoe to verify that no disposal of waste occurred in historic trenches.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: None

MEDIA OF CONCERN: None

PHASES	Start	End
RFA	199808	200303
CS	199808	200508

RC DATE: 200508

CLEANUP STRATEGY

Backhoe trenching will be conducted for one day. Soil samples will be taken.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-121
TRENCH DISPOSAL AREA A6

SITE DESCRIPTION

SAAP-121 (0.1 acres) is the Disposal site identified as A6 in 1948 aerial photographs from disturbed ground south of SAAP-001, the Classification Yard located in the northeast portion of SFAAP.

Characterization sampling was completed in 2003 as follow-up work to SAAP-001 characterization and RFI completion. There were no contaminants detected above regulatory limits; therefore, the Army recommended no further action at this site. However, KDHE wrote letter recommending the Army conduct additional soil and groundwater samples, and conduct trenching with backhoe to verify that no disposal of waste occurred in historic trenches.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Low

CONTAMINANTS OF CONCERN: None

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200508

RC DATE: 200508

CLEANUP STRATEGY

Backhoe trenching will be conducted for one day. Soil samples will be taken.

The RC date in the STATUS box above reflects only the date that this site was fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-122
OLD RECLAMATION YARD

SITE DESCRIPTION

The Old Reclamation Yard (13 acres) is located in the northeast portion of the plant. Disturbed ground in a fenced area southwest of the Classification Yard was observed in 1948 aerial photographs (A8). A site walk was conducted in February 2003. The following was observed: metal debris, stressed vegetation and bare spots.

Soil samples were collected by ACHPPM and analyzed for SVOCs, VOCs, total metals, and PCBs with six compounds exceeding their respective Region IX PRG values, including PCBs, SVOCs and metals.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: High

CONTAMINANTS OF CONCERN: POL, SVOCs, VOCs, Metals, PCBs

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199808	200303
CS	199808	200303
RFI/CMS	200303	200701

RC DATE: 200701

CLEANUP STRATEGY

Finalize the RFI report. CMS will be completed. Excavate, treat and dispose of ~6,500 cy (8,125 cy after 25% fluff factor) of contaminated soil. 125 cy of soil will be disposed of as hazardous waste. 8,000 cy of soil will be stabilized. 200 cy of debris will disposed of as solid waste.

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-123
CLEANUP UNDER EXPLOSIVE FOUNDATIONS

SITE DESCRIPTION

This site involves the investigation and cleanup underneath explosive buildings' foundations. This site includes explosive foundations within SAAP-010, 014, 017, 024, 026, 031, 036, 043, 047, 048, 065, 067, 111, 112, 116, with approximately 2,254,113 total square feet of concrete. The explosive foundations will be removed and any soil containing greater than 10% explosives will be decontaminated using non-ER,A funds. After explosive decontamination is completed, ER,A funds will pay for investigation and cleanup of any potentially contaminated soil.

CLEANUP STRATEGY

Removal of 20,871 cy of soil is planned. Assumes 25% of square footage under foundations requires removal with off-site disposal. This assumes one foot depth of excavation for the calculation of cubic yards. If LTM is required, then it will be funded under the appropriate site (see sites listed above).

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, SVOCs, Explosives, NC, VOCs, NG, Nitrates, Dioxins, Sulfates, Guanidine, Lead Ammonia, TPH, Chromium, Arsenic

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199505	199808
CS	199809	199810
RFI/CMS	200508	200801

RC DATE: 200801

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

SAAP-124
CLEANUP UNDER EXPLOSIVE SEWERS

SITE DESCRIPTION

This site involves the investigation and cleanup underneath explosive sewer lines. This site includes explosive sewer lines within SAAP-007, 008, 009, 010, 017, 024, 026, 036, 067, 116, with an approximate total linear feet of 163,141 of explosive sewer lines. The explosive sewer lines will be removed and any soil containing greater than 10% explosives will be decontaminated using non-ER,A funds. After explosive decontamination is completed, ER,A funds will pay for investigation and cleanup of any potentially contaminated soil.

STATUS

REGULATORY: RCRA

PARCEL NAME: All

RRSE: Medium

CONTAMINANTS: Metals, PAHs, VOCs, SVOCs, Explosives, NC, NG, Nitrates, Sulfates, Ammonia,

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199505	199808
CS	199809	199810
RFI/CMS	200508	200801

RC DATE: 200801

CLEANUP STRATEGY

Removal and off-site disposal of 13,114 cy of soil is planned. Investigation assumes an average of one sample every one hundred feet. If LTM is required, then it will be funded under the appropriate site (see sites listed above).

The RC date in the STATUS box above reflects only the date that this site will be fully funded under the PBC. Future work will be conducted in accordance with the consent order between KDHE and SRL. Scheduling of work shall be governed by the implementation schedule approved by KDHE.

IRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
SAAP-022	Old Explosive Waste Burning Ground	Cleanup complete. NFA.	200509
SAAP-023	New Explosive Waste Burning Ground	Cleanup complete. NFA.	199909
SAAP-028	Waste Calcium Carbide Treatment Area	Cleanup complete. NFA.	198004
SAAP-029	Industrial Wastewater Lagoons	Cleanup complete. NFA.	198004
SAAP-032	Lead Decontamination and Recovery Unit	Cleanup complete. NFA.	200310
SAAP-034	Five Corners Settling Ponds	Cleanup complete. NFA.	200409
SAAP-042	Temporary Sanitary Landfill	LTM done under SAAP-041.	200109
SAAP-044	Tank T784	Study complete. NFA.	200506
SAAP-049	Road Southeast of Sanitary Landfill	Study complete. NFA.	200509
SAAP-052	Paint Bay Building 542	Study complete. NFA.	200409
SAAP-061	Environmental Laboratory (Facility 232)	Study complete. NFA.	200504
SAAP-062	Transformer Storage Warehouse 566-5	Cleanup complete. NFA.	200504
SAAP-102	Main Electrical Switch Yard	Cleanup complete. NFA.	200504
SAAP-103	New Photographic Laboratory	Study complete. NFA.	200504
SAAP-106	Process Facilities Within F-Line	Was cleaned up under SAAP-010.	200303
SAAP-107	Truck Maintenance Shop, South Acid Area	Will be cleaned up under SAAP-067.	200303
SAAP-108	Fuel Oil Storage Tank, South Acid Area	Will be cleaned up under SAAP-067.	200303
SAAP-109	Oil & Paint Hoe, South Acid Area	Will be cleaned up under SAAP-067.	200303
SAAP-113	General Warehouses (8037 Series)	Cleanup complete. NFA.	200606

IRP Schedule

Initiation of IRP: 1979

Past Phase Completion Milestones

1980
• IRP PA Initiation, April

1990
• RFA, September

1997
• Community Relations Plan, February

1995
• Non-RCRA Groundwater Well Closures, September

1997
• IRA at SAAP-050 South, August

1999
• IRA at SAAP-050 North, July

2000
• RA at SAAP-010/011, July

2002
• IRA at SAAP-018, 032-035, June

2004
• RA at SAAP-022, December

2005
• RA at SAAP-010 (AOC 6), Mar

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates:
IRA at SAAP-001, 019, 039
RA at SAAP-002, 003, 004, 005, 006, 007, 008, 009, 010, 012, 014, 017, 018, 020, 021, 022, 024, 025, 026, 030, 031, 036, 037, 038, 040, 045, 046, 047, 051, 053

Projected Construction Completion Date of IRP: 2009

Projected Date for Removal from Proposed NPL: 2006

Schedule for Next Five-Year Review: 2011

Estimated Completion Date of IRP (including LTM phase): Indefinite

SUNFLOWER ARMY AMMUNITION PLANT IRP SCHEDULE

(Based on current funding constraints)

AEDB-R #	Phase	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
PBC Sunflower	RA(C)									

Prior Years Funds

Total Funding up to FY04: $32,967K

Year	Site Information		Expenditures	FY Total
FY05	RA(C)	PBC at Sunflower	$5900.00K	
	RI	SAAP-001	$ 0.85K	
	RI	SAAP-003	$ 4.93K	
	RI	SAAP-008	$ 17.03K	
	RA(C)	SAAP-010	$ 41.83K	
	LTM	SAAP-013	$ 32.08K	
	RI	SAAP-014	$ 3.16K	
	RI	SAAP-018	$ 18.39K	
	RA(C)	SAAP-022	$226.63K	
	RI	SAAP-025	$ 7.04K	
	LTM	SAAP-033	$ 3.30K	
	LTM	SAAP-035	$ 3.30K	
	RI	SAAP-039	$ 0.85K	
	LTM	SAAP-041	$ 2.71K	
	RI	SAAP-044	$ 1.45K	
	RI	SAAP-045	$ 13.92K	
	RI	SAAP-047	$ 0.23K	
	LTM	SAAP-050	$ 0.87K	
	RI	SAAP-053	$ 7.37K	
	RI	SAAP-066	$ 15.90K	**$6,301.8K**

Total Prior Year Funds: $39,268.8K

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06	CMI(C) PBC Sunflower	$5,400K	**$5,400K**

Total Future Requirements: **$51,900K**

Total IR Program Cost *(from inception to completion of the IRP):* **$91,168.8K**

Community Involvement

On May 6, 1998, Sunflower conducted the first RAB meeting with 17 community members attending. Six additional positions were created as follows: two for the Army and one each for the operating contractor, EPA, KDHE and ACE. RAB meetings were conducted monthly for the first six months and now meet bimonthly.

Previous meetings included activities such as:
- An installation tour
- Individual site briefings (including discussion of past practices and existing contamination)
- Educational presentations (risk assessment, how investigations are conducted, explanation of technical documents, etc.)
- Land e plan briefings presented by Johnson County
- Presentation by potential developer on the property to explain their proposal for potential site remediation

The RAB will continue bimonthly meetings.